

# PRIAMUS

## Serial Publication of the Centre for Entomological Studies Ankara

Supplement

Number 24

16 09 2011

ISSN 1015-8243

### An illustrated synopsis and keys to afrotropical genera of the epifamily Dolichopodoidae (Diptera: Empidoidea)

Igor Ya. Grichanov<sup>1</sup>

**Abstract:** An illustrated synopsis and keys to afrotropical genera of the epifamily Dolichopodoidae (Diptera: Empidoidea). - *Priamus Supplement* 24: 1-98, 305 figs.

The use of the epifamily rank Dolichopodoidae (type genus *Dolichopus* Latreille, 1796) is proposed for the Dolichopodidae s. lat., incorporating paraphyletic families Dolichopodidae and Microphoridae and subfamily Parathalassiinae incertae sedis that shares features of both Dolichopodidae and Microphoridae. Additionally, the use of the epifamily rank Empidoidea (type genus *Empis* Linnaeus, 1758) is proposed for the rest families of the superfamily Empidoidea. A brief synopsis of 84 genera of Dolichopodidae s.s. and 3 genera of Microphoridae and Parathalassiinae is given along with illustration of habitus of some typical and rare afrotropical species. Revised keys to afrotropical genera of the family Dolichopodidae (Diptera) are compiled. Illustration of typical characters of most afrotropical genera is given. *Dactylonotus meuffelsi* Grichanov, 1998, is placed in synonymy to *D. rudebecki* Vanschuytbroeck, 1960 (**syn. nov.**). The following recombinations are also proposed: *Amblypsilopus prysjonesi* (Meuffels et Grootaert, 2007), **comb. nov.**, *Bickeliolus gerlachi* (Meuffels et Grootaert, 2007), **comb. nov.**, *Lichtwardtia melanesiana* (Bickel, 2008), **comb. nov.** The genus *Machaerium* Haliday, 1832 is recorded from the Afrotropics for the first time.

**Key words:** Diptera, Empidoidea, Dolichopodoidae, Dolichopodidae, genera, Afrotropical Region, synopsis, key.

---

<sup>1</sup> All-Russian Institute of Plant Protection Podbelskogo 3, 196608 St.Petersburg-Pushkin, Russia - E-mail: [grichanov@mail.ru](mailto:grichanov@mail.ru)

## Table of Contents

Introduction .....	3
A brief synopsis of afrotropical genera of the epifamily Dolichopodoidae .....	4
Family Dolichopodidae .....	4
Subfamily Diaphorinae .....	4
Subfamily Dolichopodinae .....	7
Subfamily Hydrophorinae .....	13
Subfamily Medeterinae .....	14
Subfamily Neurigoninae .....	19
Subfamily Peloropeodinae .....	20
Subfamily Rhapsiinae .....	22
Subfamily Sciapodinae .....	22
Subfamily Sympycninae .....	27
Subfamily Xanthochlorinae .....	30
Family Microphoridae .....	30
Subfamily Parathalassiinae .....	30
Key to afrotropical subfamilies of the epifamily Dolichopodoidae .....	31
Key to afrotropical genera of Diaphorinae .....	33
Key to afrotropical genera of Dolichopodinae .....	34
Key to afrotropical genera of Hydrophorinae .....	38
Key to afrotropical genera of Medeterinae .....	39
Key to afrotropical genera of Peloropeodinae .....	41
Key to afrotropical genera of Sciapodinae .....	41
Key to afrotropical genera of Sympycninae .....	43
Key to afrotropical genera of Parathalassiinae .....	44
References .....	45
Illustrations .....	50

## Introduction

The Dolichopodidae s. str. fauna of the World is very large, with over 7400 described species belonging to 273 genera, including nearly 100 fossil species and 29 fossil genera (Grichanov, 2003–2011). The subfamilies Microphorinae and Parathalassiinae, which are included by some recent authors (e.g., Sinclair & Cumming, 2006; Moulton & Wiegmann, 2007; Lim et al., 2010) in an expanded concept of the Dolichopodidae (i.e. Dolichopodidae s. lat.), comprise about 100 species (including 13 fossil species) and 13 genera (*ibid.*). I believe that this unranked name within the superfamily Empidoidea is both unnecessary and unsatisfactory. It is undoubtedly also not desirable to treat the lineage as superfamily or to sink Microphorinae and Parathalassiinae within Dolichopodidae that would merely deflate all the Dolichopodidae s. str. names by one rank. The use of the epifamily rank, however, overcomes many problems by assigning a rank to Dolichopodidae s. lat. between family and superfamily and has the advantage of having minimal impact on either the dolichopodid or the microphorid classification. I therefore propose the use of the epifamily rank Dolichopodoidae (type genus *Dolichopus* Latreille, 1796) for the Dolichopodidae s. lat., incorporating paraphyletic families Dolichopodidae and Microphoridae and subfamily Parathalassiinae incertae sedis that shares features of both Dolichopodidae and Microphoridae. Additionally, I propose the use of the epifamily rank Empidoidae (type genus *Empis* Linnaeus, 1758) for the rest families of the superfamily Empidoidea. A similar problem arised and was similarly solved, considering the termite and the cockroach classification (e.g., Eggleton et al., 2007).

Fifty-two genera of Dolichopodidae and one parathalassiine genus were listed in the *Catalogue of the Diptera of the Afrotropical Region* (Dyde & Smith, 1980), of which many ones were later placed in synonymy, renamed or removed from the regional fauna. Three genera contained no named species, whereas two genera comprised only doubtful records of palaearctic species. All listed species were removed from the genera *Cymatopus*, *Dolichopus* and *Sciapus*; nevertheless, some new species were later described in these genera. Only 41 genera listed in the *Catalogue* are recognized in the Afrotropics by now. Since 1980, a number of new afrotropical genera of the family have been also revealed or described. Recently, Grichanov (2010a) provided a revised checklist of afrotropical genera of the epifamily Dolichopodoidae. Approximately 270 species of the family are known from the Democratic Republic of Congo, representing the largest recorded dolichopodid fauna of any African country (Grichanov et al., 2011).

In the present paper, I give a brief synopsis of all afrotropical genera, including 84 genera of Dolichopodidae, one genus of Microphoridae and two genera of Parathalassiinae, along with habitus illustrations of some typical and rare species and references to the most recent keys to species of dolichopodid genera. Usually key characters of the subfamily rank are listed below in the generic diagnoses. Here I give also keys to all afrotropical subfamilies and genera along with illustration of key characters of most genera. A few non-afrotropical genera (marked with square brackets) from adjacent Regions were also included into the keys. Subfamily keys to genera are arranged alphabetically, but Parathalassiinae are given at the end. Line drawings and photos were made by the author of this paper.

## **A brief synopsis of afrotropical genera of the epifamily Dolichopodoidae**

### **Family Dolichopodidae**

#### **Subfamily Diaphorinae**

##### ***Achradocera* Becker, 1922 (Figs. 1-4)**

This genus was formerly regarded as a subgenus of *Chrysotus* or *Diaphorus*. There are four described afrotropical species of 17 world species, mainly neotropical ones, with two species extending in the Nearctic Region (Bickel, 2009). One of these, *A. barbata* (Loew), ranges from Chile to the USA, and also French Polynesia and Tonga in the Pacific. Small-sized species. This diaphorine genus is close to *Chrysotus* Meigen, differing in following characters: male postpedicel globular, reniform or conoid with subapical arista-like stylus; lower postocular surface with fine unmodified setae. There are no suitable keys to the afrotropical fauna.

##### ***Aphasmaphleps* Grichanov, 2010 (Figs. 5-8)**

This genus is known from Senegal by a male *A. bandia* (Grichanov, 2010b). I saw an additional material from Botswana and Madagascar. Small-sized species. Head with occiput concave; pairs of strong postvertical, strong vertical and strong ocellar setae present; male eyes joined across lower face with anteroventral facets enlarged; postpedicel subtriangular, with dorsoapical arista-like stylus. Mesonotum with little pruinosity; setae black; acrostichals biseriate; 5 dorsocentrals present, with posteriormost pair slightly offset laterally; lower part of proepisternum with pale seta just above coxa, subtended dorsally by shorter seta; upper part of proepisternum with 1 weak white seta; lateral scutellar setae absent. Femora without true preapical anterior bristles. Costal wing vein extending beyond tip of  $R_{4+5}$ , but not reaching vein M;  $R_{4+5}$  ending not far from wing apex; vein M ending at wing apex; distal parts of  $R_{4+5}$  and  $M_{1+2}$  slightly diverging and slightly convex anteriorly, parallel at apex; *dm-cu* much shorter than distal part of  $CuA_1$ . Abdomen with short black vestiture; male postabdomen with tergum and sternum 7 greatly reduced; segment 8 with 2 strong diverging setae which project posteriad; hypopygial foramen left lateral; epandrium circular with phallus following curvature of epandrium; epandrial lobe with 2 apical setae; surstylus digitiform; postgonite present; cercus short, rounded.

##### ***Argyra* Macquart, 1834 (Figs. 9-12)**

This genus is largely holarctic and oriental, with more than 100 described species. About 40 species are known from Palearctic Region, one from Neotropics. Two species were described from Ethiopia and Kenya (Grichanov, 1998), both lacking argyraceous tomentosity on body, as well as an undescribed species from DR Congo. *Argyra amicta* (Wiedemann, 1824) was described from "Guinea" without reliable diagnostic characters, with its types being probably lost. Medium-sized species; occiput concave; antennal postpedicel pressed laterally, bladelike to subtriangular, with distinct apex and dorsal to dorsoapical arista-like stylus; costa extending beyond tip of  $R_{4+5}$ , ending at apex of vein M; vein M unbroken; hind coxa with external vertical row of 3-4 setae decreasing in length ventrally; scape with dorsal setae (bare in some species). A key to afrotropical species was provided by Grichanov (1998a).

### ***Asyndetus* Loew, 1869 (Figs. 13-16)**

This cosmopolitan genus is defined (together with *Cryptophleps* Lichtwardt) by the synapomorphy of the broken and displaced vein M which readily distinguishes it from the closely related and probably ancestral genus *Diaphorus*. *Asyndetus* can be common in littoral habitats, including arid coasts (Bickel & Sinclair, 1997). Some 100 species are described from all regions of the World. *Asyndetus* is rather abundant in African collections, but representing only 8 species. I keep only a few new species from this genus, but a great amount of material with known species. Small to medium-sized (body length 1.5-4.5 mm); upper part of proepisternum with 2–4 fine setae; acrostichals usually present; male segment 8 often with strong projecting setae. There are no suitable keys to the afrotropical fauna.

### ***Chrysotus* Meigen, 1824 (Figs. 17-20)**

Some 320 species are described from the World. *Chrysotus* is rather abundant in African collections, but representing only 16 species. I keep only a few new species from this genus, but a great amount of material with known species. This diaphorine genus is close to tropical *Achradocera* Becker, differing in following characters: male postpedicel globular, reniform or conoid with long subapical arista-like stylus; lower postocular surface with fine unmodified setae. Small species; males and females with frons wider than face; face narrowing downward; eyes shortly haired; male eyes very narrowly separated or contiguous on face (sometimes widely separated), with enlarged facets toward face; propleuron with 2-3 bristles on lower part.  $R_{4+5}$  and  $M_{1+2}$  usually convex anteriorly and parallel apically (Bickel, 2009). *C. longipalpus* Aldrich, 1896, has the most remarkable distribution pattern, occurring in the Neotropical (St. Vincent, Grenada), Oriental (Chagos Arch.: Diego Garcia), Australasian (Hawaiian Is.) and Afrotropical Regions (3 males and a number of females: Mauritius: Curepipe, Bel Ombre and Nicoliere Mts., collected by A.M. Hutson in June, 1971, and deposited in the collection of the Natural History Museum, London), being introduced also in the Palaearctic (UK and Finland). There are no suitable keys to the afrotropical fauna.

### ***Cryptophleps* Lichtwardt, 1898 (Figs. 21-24)**

This is an Old World genus comprising one species from Ivory Coast and Namibia, two from the Seychelles, one transpalearctic species, four from Australia, and ten from western Pacific island groups. I have also examined material from Saudi Arabia. The genus occurs in a variety of habitats, including tropical coastal mudflats, mangroves, rainforests, and temperate woodlands (Bickel, 2005). Small species; costa not extending beyond tip of  $R_{4+5}$ ; distal vein M gently sinuate or broken or weakened, with distal section often displaced; vein  $R_{4+5}$  ending along distal anterior wing margin, well before wing apex; distal parts of  $R_{4+5}$  and  $M_{1+2}$  strongly diverging; upper part of proepisternum usually bare; acrostichals absent or microscopic; male segment 8 without strong setae.

### ***Dactylonotus* Parent, 1934 (Figs. 25-28)**

This genus comprises one New Zealand and four southern African species. Grichanov (1998b, 2000a) redescribed *D. rudebecki* Vanschuytbroeck, 1960 (as *D. meuffelsi* Grichanov, 1998, **syn. nov.**) and *D. univittatus* (Loew, 1858). Medium-sized species. Antennal pedicel with fingerlike projection overlapping postpedicel; postpedicel with distinct apex, with relatively short dorsal arista-like stylus, either basal or subapical in position; occiput convex or flat; male frons and face broad; posterior four femora with anterior subapical bristle in both sexes; costa extending beyond tip of  $R_{4+5}$ , ending at apex of vein M; vein M unbroken; male segment 8 with strong projecting setae.

### ***Diaphorus* Meigen, 1824 (Figs. 29-32)**

Some 260 species are described from the World, including about 40 palearctic ones. *Diaphorus* is rather abundant in African collections, but representing 21 species. I keep only a few new species from this genus, but a great amount of material with known species. Small- to medium-sized species; male eyes contiguous or narrowly separated on frons; face rather wide and parallel-sided; postpedicel rather small and short, usually wider than long; arista-like stylus with very short basal segment; acrostichals biseriate; wing usually somewhat wedge-shaped, with greatest width before middle; male segment 8 with 4–8 strong bristles. There are no suitable keys to the afrotropical fauna. *D. alsiosus* (Meunier, 1910) is known from rather recent Zanzibaran copal (Pleistocene/Holocene) (Grichanov, 2008a).

### **[*Melanostolus* Kowarz, 1884]**

There are six palaeartic species of *Melanostolus*. It was most probably in error recorded from Kenya (see Dyte and Smith, 1980). See Grichanov et al. (2011a, 2011b) for the generic diagnosis and illustrations.

### ***Nurteria* Dyte et Smith, 1980 (Figs. 33-35)**

This genus with three known species is an unrevised genus originally described in the Diaphorinae (Parent, 1934). Several undescribed species of the genus from southern Africa share some features with the Sympycninae. Small-sized species; antennal pedicel without finger-like projection; male sternite 8 without strong setae; occiput convex or flat; male frons and face broad; posterior four femora with anterior subapical bristle in both sexes; costa extending beyond tip of  $R_{4+5}$ , ending at apex of vein M; vein M unbroken.

### ***Shamshevia* Grichanov, 2011 (Figs. 36-39)**

The genus *Shamshevia* is described from Namibia to accommodate a new species, *Sh. hoanibensis* Grichanov, 2011. Despite flattened posterior mesonotum, the new genus is placed in the subfamily Diaphorinae and is considered close to the genus *Dactylonotus*, differing from the latter in peculiar characters of male antenna, wing and genitalia. Body and wing length less than 2 mm; body and legs with all bristles white. Antennal scape with long pointed ventral process; pedicel with short visible base, with long concealed conus reaching basal 1/3 of postpedicel; postpedicel flat, long, band-like, with pointed apex. Arista-like stylus basodorsal, with long segment 1 and short segment 2. Palpus large, ovate, white, with short apical seta. Thorax entirely dark brown. Wing with  $R_{4+5}$  and  $M_{1+2}$  subparallel in middle part and slightly divergent on apical part of wing;  $M_{1+2}$  broadly curved anteriorly in apical half; *dm-cu* faint, located at wing base, at level of r-m. Abdomen in *Shamshevia* has hypandrium weakly sclerotized, fused with epandrium, simple, triangular; parameral sheath long, narrow, simple, cylindrical; postgonite exposed, reaching apex of surstylus.

### ***Trigonocera* Becker, 1902 (Figs. 40-43)**

There are 9 described Old World species, including 3 afrotropical species (Naglis, 1999; Grichanov & Mostovski, 2009a). *T. rivos*a Becker, 1902, was recorded from Egypt, Cape Verde Is. and Taiwan. Small- to medium-sized species; frons narrow; face wide and parallel-sided; postpedicel large, usually with acute apex; arista-like stylus apical; 5–6 dorsocentrals, acrostichals biseriate; wing with large anal area; femora without preapical bristles; male tergum 6 bare, genitalia small, hidden within pregenital segments.

### ***Urodolichus* Lamb, 1922 (Figs. 44-47)**

There are 5 afrotropical (from Seychelles and Madagascar) and one oriental (Sri Lanka) and one australasian (Papua New Guinea) described species. Medium-sized species; antenna short, positioned at upper quarter of head, with dorsal arista-like stylus; no flattened posterior area on mesonotum; acrostichals biseriate; hind femur without real preapical bristle; hind coxa with exterior bristle, hind basitarsus much shorter than next segment; wing vein  $M_{1+2}$  with usually distinct sinuation at 2/5 of distal part; male segment 7 rather long. A key to afrotropical species of *Urodolichus* was provided by Grichanov (1998c).

### **Subfamily Dolichopodinae**

### ***Afrohercostomus* Grichanov, 2010 (Figs. 48-51)**

The genus is established within the tribe Dolichopodini for 13 species and subspecies of *Hercostrabus* and two new species, distributed from South Africa to Ethiopia. Length, 3 to 6 mm; body dark metallic; face gradually narrowed towards palpi, broader in female; clypeus flat, not reaching lower margin of eyes; palpus and proboscis small; vertical setae stronger than postverticals; male antennomeres simple; arista-like stylus shortly pubescent; pleural surface in front of posterior spiracle bare; mesonotum with distinct dark metallic spot above notopleuron; acrostichals, presutural and sutural bristles well developed; hind coxa with 1 strong external seta at middle; femora yellow, at most hind femur black at extreme apex; one strong posterior to posteroventral preapical seta on the mid femur; hind femur with one subapical anterodorsal seta; male fore tarsus simple, but with velvety pilosity on the ventral surface; three apical segments of male hind tarsus usually flattened and slightly widened; 1, 2 or 3 apical segments of the same tarsus usually silvery pilose on one side; 5<sup>th</sup> segment of male mid tarsus often silvery pilose; wing evenly greyish, almost hyaline, simple in both sexes; veins  $R_{4+5}$  and  $M_{1+2}$  nearly parallel or slightly convergent;  $M_{1+2}$  almost straight or slightly convex anteriorly; abdominal spiracles 7 enlarged; hypandrium fused to epandrium except apex; postgonite distinct; surstylus bilobate; cercus flat, comparatively small, usually simple and subtriangular, light, with ring of usually short marginal setae or hairs of different length. A key to known species is compiled by Grichanov (2010c).

### ***Afroparaclius* Grichanov, 2006 (Fig. 52)**

The genus is established for two species originally described in *Paraclius* Bigot, 1859. The species are included in a key compiled for the latter (Grichanov, 2004). They are distributed in Madagascar, Burundi and DR Congo. *Afroparaclius* is close to *Pseudoparaclius*, both having arista-like stylus short pubescent, with hairs shorter than basal diameter of stylus; hind tibia without strong ventral setae, usually with a row of very fine short setae. Nevertheless, they are apparently paraphyletic due to different wing venation and hypopygium morphology. Wing vein  $M_{1+2}$  with right-angular curvature towards  $R_{4+5}$  at 2/3 of distal part, forming deep anterior arc in distal third; stylus middorsal; male legs simple; epandrium large, suboval, nearly twice longer than high; hypandrium and phallus thin along their whole length and simple; distoventral epandrial lobe very small, immediately following epandrial seta; postgonite and surstylus relatively short; surstylus with dorsal lobe distinctly broader than ventral lobe; cercus small, simple (Grichanov, 2006a).

### ***Afropelastoneurus* Grichanov, 2006 (Figs. 53-56)**

The genus is established for five species originally described in *Hercostomus*, *Paracleius* and *Pelastoneurus* Loew, 1861. The species are included in a key compiled for *Paracleius* (Grichanov, 2004). They are distributed in DR Congo and Equatorial Guinea (Fernando Poo). One more undescribed species from DR Congo is waiting description. *Afropelastoneurus* differs in strictly straight and nearly parallel wing veins  $R_{4+5}$  and  $M_{1+2}$ , in position of anterior subapical seta on hind femur (far from apex, i.e. at distal 2/3 to 3/5), in different morphology of male genitalia (simple hypandrium and aedeagus, narrow and simple postgonite, long and narrow distoventral epandrial lobe, etc.). Vein  $M_{1+2}$  beyond crossvein *dm-cu* straight and subparallel to  $R_{4+5}$ ; male fore legs often modified (except *A. fernandopoensis*); hind femur simple, with anterior preapical seta positioned far from apex, i.e. at distal 2/3 to 3/5; 5 dorsocentrals; pleura with cluster of fine hairs in front of posterior spiracle; arista-like stylus with long hairs; wing brown, usually with pale transverse stripe just beyond crossvein *dm-cu*; thorax and abdomen bluish-black, spot above notopleuron dull black, notum with dark medial longitudinal stripe and usually a dark spot in front of scutellum; lower margin of clypeus subtriangular; hypandrium simple, not fused to epandrium laterally near basiventral epandrial lobe; cercus small, simple, with a few distinct strong distal setae; postgonite narrow (Grichanov, 2006a).

### ***Apelastoneurus* Grichanov, 2006 (Figs. 57-60)**

The genus is established for 47 species originally described in *Paracleius*, *Paraclius* Loew, 1864, and *Pelastoneurus*. The species are included in a key compiled for *Paracleius* (Grichanov, 2004). They are distributed all over the tropical Africa including adjacent islands (Madagascar, Seychelles, St. Helena). The genus, as currently recognized, is a polyphyletic assemblage of species, sharing many characters with the New World *Paraclius arcuatus* and *Pelastoneurus vagans* lineages, though well differing from both lineages. It includes 3 groups and a number of ungrouped afrotropical species. It is quite probable that some of these species are linked with unrevised groups of neotropical and oriental species that are placed currently within *Paraclius* and *Pelastoneurus*. Nevertheless, *Apelastoneurus micrurus* lineage seems to be restricted to the Old World. Afrotropical species of *Apelastoneurus* differ from the New World *Paraclius arcuatus* lineage and *Pelastoneurus vagans* lineage by the following complex of characters. Head usually not wider than high; face usually moderately narrow; male face narrower than female face. One long and strong vertical at the top of head, usually arising from a small mound, one shorter postvertical as a linear continuation of postocular setal row, a pair of strong ocellar setae present; palpus with 1 short, usually black, seldom yellow seta; antenna positioned at upper third, rarely at middle of head; arista-like stylus often pubescent; postpedicel usually subtriangular, asymmetric; 1 strong and 1–3 hairlike humeral, 1 posthumeral setae present; proepisternum with 1 strong seta above fore coxa and several short hairs; at least some species (*confusibilis* group) bearing pleural cluster of fine hairs in front of posterior spiracle; fore coxa with short black hairs anteriorly and black setae at apex; mid coxa with 1 strong external setae in addition to anterior hairs; hind coxa with 1 external seta; mid femur with 1, sometimes with 2 or more strong anterior subapical setae; hind femur often flattened laterally, high, with at least 1 anterodorsal and usually 1 anteroventral setae; hind basitarsus with 1 short basoventral seta, without setae above. Vein  $M_{1+2}$  usually distinctly bent in distal part, with more or less strongly convergent  $R_{4+5}$  and  $M_{1+2}$ ; if  $R_{4+5}$  and  $M_{1+2}$  straight and weakly convergent, then subapical seta positioned at distal third or just behind the middle of hind femur; female oviscapt usually hidden, simple (Grichanov, 2006a).



### ***Argyrochlamys* Lamb, 1922 (Figs. 61-64)**

The genus includes seven species recorded from the Afrotropics (Angola, Ghana, Sudan, Djibouti, Eritrea, Tanzania, Seychelles and Mauritius), the Oriental Region (Chagos Archipelago, Sri Lanka) and the southernmost part of the Palearctic Region (two species from southern Egypt and Oman) (Grichanov, 2010d). Species of *Argyrochlamys* are restricted to ocean beaches and are sometimes collected in crab burrows (e.g., *Ocypode* Lamarck, Ocypodidae); at present, their ecological role within these burrows is unknown (Grichanov, 2004; Brooks, 2005). Body medium-sized, non-metallic; head grey, with whitish pollen, wider than high, with frons and face broad in both sexes; frons distinctly wider than high; thorax yellow, pale-grey to dark grey or blackish with whitish-grey pollen; antennal stylus dorsal to apical, bare; 6 dorsocentrals, fifth pair usually strongly offset medially; vein  $M_{1+2}$  beyond crossvein *dm-cu* usually with strong anterior bend and strongly convergent with  $R_{4+5}$ ; *dm-cu* located at about half wing length; abdomen yellowish brown; hind basitarsus of male with elongate comma-shaped posterobasal projection; male genitalia with proctiger brushes absent; female oviscapt usually with a pair of rod-like strong ventral lobes, exposed, if projections reduced, then setae of body and legs pale. A key to all species was provided by Grichanov (2010d).

### ***Dolichopus* Latreille, 1796 (Figs. 65-68)**

Six species of *Dolichopus* were included in the *Catalogue of the Diptera of the Afrotropical Region* by Dyte and Smith (1980), of which three species were transferred to other genera and three species were excluded from the fauna of Afrotropics (Grichanov, 2004). At the same time, one new species was described and 3 more species were recorded for the region for the first time (*ibid.*). Now there are four known afrotropical species of about 620 world species (mainly holarctic ones). *D. afroungulatus* Grichanov, 2004, is only endemic of continental Afrotropics, distributed from South Africa to Ethiopia. Records of at least two European species (*D. festivus* Haliday, 1832 and *D. sabinus* Haliday, 1838) need confirmation as they could be mislabelled if not accidentally introduced in the Afrotropical Region. *Dolichopus* has many links with *Hercostomus* and *Lichtwardtia*, differing from the first genus in hind basitarsus bearing 1-3 strong setae above, and pteropleuron having a group of fine hairs in front of posterior spiracle; from the second one in  $M_{1+2}$  being sigmatoid at middle of distal part, rarely with one stublike vein. Body medium- to large-sized. A key to known afrotropical species was published by Grichanov (2004).

### ***Hercostomus* Loew, 1857 (Figs. 69-72)**

Some 470 species are described from the World, including about 130 palearctic ones. *Hercostomus*, as currently recognized, is still a polyphyletic assemblage of species, sharing many characters with the closest genera (Brooks, 2005). Recently 14 afrotropical species have been separated in the genus *Afrohercostomus*, and 21 afrotropical species in the genus *Neohercostomus* (Grichanov, 2010c, 2011a). So, about 20 afrotropical species belong to the true *Hercostomus*, i.e., to the nominotypical *Hercostomus longiventris* lineage (*Hercostomus sensu stricto*) (Brooks, 2005). Body medium- to large-sized. Thorax lacking distinct dark spot above notopleuron; mid femur with one strong posterior preapical about even with anterior preapical; hind femur with anterior seta positioned at apex, usually not or slightly flattened laterally; wing rarely darkened in anterior half; wing vein  $M_{1+2}$  weakly sinuate, with flexion at basal third or at middle of distal part and sometimes with subapical flexion; antennal pedicel normal; epandrial lobe reduced to 1-2 setae; basiventral epandrial lobes and hypandrium forming a complex of entangled asymmetrical lobes; male cercus light or dark; female hemitergite 9+10 with 4 thick setae.

Nectar-feeding is known in some species of *Hercostomus*. A key to afrotropical *Hercostomus* sensu lato species was published by Grichanov (2004).

### ***Katangaia* Parent, 1933 (Figs. 73-74)**

There are three described species in this genus endemic for continental Afrotropics. The genus was associated with the dolichopodine genus *Polymedon* Osten Sacken, 1877 (Grichanov, 2004), now synonym of *Tachytrechus*; but it was considered *incertae sedis* by Brooks (2005). *Katangaia* is an enigmatic genus that possesses typical dolichopodine characters, such as a dorsally setose scape, in combination with several non-dolichopodine characters. This genus shows a resemblance to *Tachytrechus*, particularly in the structure of the clypeus, which is elongate and rounded below. These characters, albeit synapomorphic for *Tachytrechus*, also occur in other dolichopodine genera (e.g., *Dolichopus*, *Hercostomus*). *Tachytrechus* and *Katangaia* also share a strong basiventral seta on the hind basitarsus. Unlike *Tachytrechus*, in which the posterodorsal part of the postgonite is distinctively upturned and laterally flared, the postgonite of *Katangaia* is simple. *Katangaia* lacks a distinct pedicel condyle, has a partially setose male abdominal tergum 6, and lacks anterior preapical setae on the mid femur and strong external bristle on the hind coxa. Probably the most striking autapomorphy of *Katangaia* is the large male cercus, which has claw-like medial projections. Frons is low, antennae are positioned at the top of head; postpedicel with apical stylus;  $M_{1+2}$  with weak flexion at basal 2/5 of its distal part, joining costal vein just before wing tip. A key was provided by Grichanov (2004).

### ***Lichtwardtia* Enderlein, 1912 (Figs. 75-78)**

This genus was synonymised with *Dolichopus* Latreille (Brooks, 2005); but being quite distinct in the Old World tropics (Zhang et al., 2005; Yang et al., 2006; Selivanova et al., 2010; etc.). The genus has palaeotropical area with 17 described afrotropical and 5 oriental and australasian species including *Lichtwardtia melanesiana* (Bickel, 2008) [*Dolichopus*], **comb. nov.** Species of *Lichtwardtia* differ from the related genera of the tribe Dolichopodini in the complex of characters such as follows: one strong anterior subapical seta is present on the mid and hind femora; the face is slightly narrowed at upper third and somewhat widened towards clypeus; arista-like stylus is long pubescent; wing vein  $M_{1+2}$  is broken in middle of distal part, joining costal vein just before wing tip, having anteroproximal (basal part of  $M_1$ ) and posterodistal ( $M_2$ ) stublike veins;  $R_{4+5}$  and distal part of  $M_1$  are nearly parallel. A key to afrotropical species was provided by Grichanov (2004).

### ***Neohercostomus* Grichanov, 2011 (Figs. 79-82)**

The genus includes 21 species from continental Afrotropics, assigned formerly to *Hercostomus*. Body length, 1.2 to 3.4 mm; body dark metallic; face gradually narrowed towards palpi, slightly broader in female; clypeus flat, not reaching lower margin of eyes; palpus and proboscis small; vertical setae stronger than postverticals; male antennomeres simple; male postpedicel securiform, with basidorsal stylus; arista-like stylus shortly pubescent; pleural surface in front of posterior spiracle usually bare, but *N. ashleyi* Grichanov, 2011, has katepisternum (above mid coxa) bearing 3 fine black setae and anepimeron (in front of posterior spiracle) bearing one fine black seta anteriorly; mesonotum without distinct dark spot above notopleuron; acrostichals, presutural and sutural bristles well developed; 5 pairs of strong dorsocentral bristles decreasing in length anteriorly with several hairs in front of the 1<sup>st</sup> pair; hind coxa with 1 strong external seta at middle; legs mostly yellow, hind femur usually black or brown in at least apical third; one strong posterior to posteroventral preapical seta on the mid femur; mid and hind femora with one subapical anterior bristle; mid and hind tibiae without strong ventral setae; male

tarsi usually simple; rarely fore tarsus modified; wing usually hyaline, rarely wing apex modified in male; veins  $R_{4+5}$  and  $M_{1+2}$  nearly parallel or slightly convergent;  $M_{1+2}$  almost straight or slightly convex anteriorly; abdominal spiracle 7 invisible; hypandrium free, usually entire, but always with long thin basal lobe; postgonite distinct; surstylus bilobate; male cercus narrow, often ornamented with processes or bunches of long cilia. Three species, all from South Africa, are separated in the subgenus *Subhercostomus* Grichanov, 2011. It is similar to *Neohercostomus* in all respects except as noted. Length, about 3 mm; legs mostly yellow with hind femur entirely yellow or brown at apex; lower postocular setae black; male wing modified at apex, with blackish or brownish spot or white margin at apex of  $M_{1+2}$ ; hypopygium sessile, directed ventrally; epandrium rounded, with asymmetrical lobes; left epandrial lobe strongly expanded distoventrally, without long setae; male cercus small, suboval, without processes or bunches of long cilia; surstylus not fused to epandrium, arising distally or distodorsally; dorsal surstylus distinctly bilobate. A key to afrotropical species was provided by Grichanov (2011a).

### ***Pseudargyrochlamys* Grichanov, 2006 (Figs. 83-86)**

The genus is established within the subfamily Dolichopodinae for four species originally described in *Paracleius*. All they inhabit South Africa. The genus is very close to *Argyrochlamys*, differing in head being distinctly higher than wide; female face is narrow; female oviscapt has weak ventral lobes. Body non-metallic; head higher than wide; frons black, grey or brownish pollinose, high, as high as face; male face very narrow, female face slightly wider, both almost parallel-sided; thorax mainly yellow-orange with only black longitudinal stripe on mesonotum to mainly black with only metepimerons yellow-brown, weakly to densely pollinose; arista-like stylus basodorsal, bare; 5 dorsocentrals in two regular rows; vein  $M_{1+2}$  is distinctly bent in distal part, reaching costa near the tip of wing;  $R_{4+5}$  and  $M_{1+2}$  subparallel at apex; *dm-cu* located at about basal third of wing, very short; hind femur bears one true anterior subapical bristle; hind coxa has 1 strong external bristle; hind basitarsus without setae above; hind basitarsus of male without comma-shaped posterobasal projection; abdomen mostly orange-yellow with black dorsolateral spots; male genitalia with proctiger brushes absent; female oviscapt hidden, simple (Grichanov, 2006a). The species are included in a key compiled for the *Paracleius* (Grichanov, 2004).

### ***Pseudohercostomus* Stackelberg, 1931 (Figs. 87-89)**

Three species were described from Chile, Indonesia and oriental China. Indonesian *P. echinatus* Stackelberg, 1931, was recorded from DR Congo (Grichanov, 2004). Brooks (2005) considered *Pseudohercostomus* incertae sedis, rejecting its placement in Dolichopodinae. Yang et al. (2006) followed Grichanov (2004), placing it in Dolichopodinae. Small species; frons high; scape microscopically haired dorsally; hind coxa with 1 strong external seta; hypopygium small and encapsulated; cercus small, suboval. Apparent autapomorphic features of the genus include the possession of a very wide metepimeron, the bilobate male sperm pump and the distinctive female terminalia with tergum 9+10 densely covered with spines. Stackelberg (1931) considered the 4 rows of acrostichals present in *P. echinatus* to be a generic character; however, Brooks (2005) have examined a female of an undescribed species from New Guinea, which clearly possesses biserial acrostichals.

### ***Pseudoparaclius* Grichanov, 2006 (Figs. 90-93)**

The genus is established for 14 species originally described in *Paracleius*, *Paraclius* and *Pelastoneurus*. They are distributed all over the tropics of continental Africa. *Pseudoparaclius* is close to *Afroparaclius* (see diagnosis of the latter). Wing vein  $M_{1+2}$

convex posteriad, having gentle curvation towards  $R_{4+5}$  at middle of distal part, joining costa far before wing apex; arista-like stylus positioned behind middle of dorsal side of postpedicel, usually at distal 2/3 or 3/4; male fore or mid legs often ornamented; epandrium large, trapezoidal, longer than high, with shorter ventral side (lateral view); hypandrium thick at base, usually with 2–3 relatively broad lobes; phallus short, concealed; distoventral epandrial lobe greatly expanded distally, often having 2 long modified setae; postgonite long, narrow [except *P. sanjensis* (Grichanov, 2004)]; surstylus with long thin lobes; cercus well developed, often with inner lobe or fold bearing brush of hairs; proctiger reduced (Grichanov, 2006a). The *Pseudoparaclius* species are included in a key compiled for *Paracleius* (Grichanov, 2004).

### ***Pseudopelastoneurus* Grichanov, 2006 (Figs. 94-97)**

The genus is established for two species originally described in *Pelastoneurus*. They are distributed from Sierra Leone in the West to Kenya in the East and Angola in the South. *P. diversifemur* (Parent, 1935) is well distinguished by 4 rows of acrostichal setae. This character along with hypopygium morphology and general habitus is rather similar to those in *Pseudohercostomus echinatus* Stackelberg. Nevertheless, *P. echinatus* has straight wing vein  $M_{1+2}$ ; while *P. diversipes* (Parent, 1935) (sister species of *P. diversifemur*) has biseriate acrostichals. Postpedicel rounded, with oval apex, as long as high, with microscopic hairs; arista-like stylus middorsal, with hairs 3–4 times longer than basal diameter of stylus; lower postocular setae entirely black; acrostichal setae multiserial or biserial;  $M_{1+2}$  having strong curvation towards  $R_{4+5}$  just behind middle of distal part, then forming gentle arc, being subparallel to  $R_{4+5}$  at apex; thorax and abdomen black; fore and mid femora yellow, hind femur black except apices; hind tibia with row of only fine ventral setae; hypopygium encapsulated, non-pedunculate (6–7<sup>th</sup> segments very small), with very small, rounded epandrium; distoventral epandrial lobe fused with epandrium, short and broad, apicoventral in position, having 2 strong and long setae; 1 strong pedunculate epandrial seta at base of hypandrium; hypandrium middorsal, simple; phallus thin, concealed; postgonite narrow, as long as surstyli, slightly curved; surstylus with 2 straight lobes; ventral lobe somewhat shorter and narrower than dorsal lobe of surstylus; cercus small, suboval (Grichanov, 2006a). The species are included in a key compiled for *Paracleius* (Grichanov, 2004).

### ***Sybistroma* Meigen, 1824 (Figs. 98-101)**

This genus contains 50 western and eastern palearctic species and one species *S. bogoria* (Grichanov, 2004) described from Kenya (Grichanov, 2004). Middle-sized (body length 3-5 mm); vertex somewhat flat; ocellar tubercle with 2 strong ocellars; verticals as long as or slightly shorter than ocellars, postverticals distinctly shorter than verticals; face narrowing downward; eyes narrowly separated; clypeus short and small (1/7-1/5 as long as combined length of face and clypeus), contiguous to eyes laterally, with straight lower margin; not reaching lower margin of eyes; antennal scape haired dorsally, swollen; pedicel usually reduced; arista-like stylus 1-2 segmented, dorsal to subapical, nearly bare, longer than width of head; antennal sockets close to each other, close to inner margin of eyes; scutellum with 2 pairs of bristles, apical pair strong, lateral pair 1/5 as long as apical pair; pteropleuron without hairs in front of posterior spiracle; hind coxae with 1 outer bristle at middle; mid and hind femora each with 1 preapical bristle; hind femur slender, 8-9 times longer than wide; hind tarsomere 1 without dorsal bristle, shorter than tarsomere 2; M slightly curved towards  $R_{4+5}$ , distinctly ended before wing tip.

### ***Tachytrechus* Haliday in Walker, 1851 (Figs. 102-105)**

There are 154 described species of *Tachytrechus*, of which 15 occur in the Afrotropical Region. Middle-sized (body length 3-5 mm); eyes dichoptic; vertex distinctly concaved; ocellar tubercle distinct; hind basitarsus without setae above; several strong anterodorsal setae in apical half of the hind femur in addition to the true anterior subapical seta; face narrowed under antennae and somewhat widened towards clypeus; clypeus long and wide (1/3 as long as total length of face and clypeus), convex, reaching or beyond lower margin of eyes, visible in lateral view; postpedicel usually short and suboval; stylus short and bare; wing vein  $M_{1+2}$  usually with gentle curvation before the middle of distal part, then running towards  $R_{4+5}$  and reaching costa far before the tip of wing. A key was provided by Grichanov (2004).

### **Subfamily Hydrophorinae**

#### **[*Anahydrophorus* Becker, 1917]**

This monotypic genus is known from Spain and North Africa. It was most probably in error recorded from DR Congo (see Dyte & Smith, 1980). See Negrobov (1978) for redescription of *A. cinereus* (Fabricius, 1805), Grichanov et al. (2011a, 2011b) for illustrations.

### ***Aphrosylus* Haliday in Walker, 1851 (Figs. 106-107)**

Five of the 31 (mainly Mediterranean) described species of *Aphrosylus* are found in the Afrotropical Region (Rampini, 1982; Rampini & Munari, 1987). They were described from Sierra Leone, Senegal and Cape Verde Islands, though I saw a species from South Africa. Small-sized species. Labellum usually hook-shaped in lateral view; arista-like stylus apical; fore tibia at apex with distinct erect spinose seta; male hind basitarsus simple, without strong seta. There are no suitable keys to the afrotropical fauna.

### ***Cemocarus* Meuffels et Grootaert, 1984 (Figs. 108-111)**

The genus was created for single South African species *C. griseatus* (Curran, 1926) found later in Namibia. Second species was described also from South Africa (Grichanov, 1997a). I saw material with additional undescribed species from Namibia and South Africa. Moderate-sized black species without metallic shine; face very broad in both sexes; clypeus prominent, hemispheroid; palpi not very large, bristled, no apical; frons broad with a pair of frontal bristles in front of the ocellar tubercle; pair of postverticals; postoculars uniseriate above, becoming finer and multiseriate below; antenna short, with large postpedicel; scape conoid, longer than pedicel which is ring-like, with triangular protuberance on the inside and the outside; postpedicel trapezoid with a small dorsal and longer ventral projection, the remarkably short arista-like stylus inserted between them (subapical); thorax dusted, arched above, the posterior fourth with a more or less concave posterior slope; chaetotaxy: acrostichals biserial or uniserial, 6 dorsocentrals, 4 scutellars; 3 fine prothoracic hairs (no bristles), pleura further bare; legs rather short, simple in structure (no raptorial modifications), without peculiar bristles; all femora somewhat thickened; fifth tarsal segments long and broad with well-developed pulvilli; wing narrow, nearly as long as thorax and abdomen together; costa shortly spinulose, reaching tip of  $M_{1+2}$ ; crossvein *dm-cu* beyond middle of the wing, as long as or longer than apical segment  $CuA_1$ ; abdomen dusted, cylindrical, longer than thorax; hypopygium sessile, cerci long. No sexual dimorphism (Meuffels & Grootaert, 1984).

### ***Cymatopus* Kertész, 1901 (Figs. 112-114)**

World fauna numbers 19 species. Single afrotropical species *C. stuckenbergi* (Grootaert & Grichanov 2008) was described from Madagascar (body length 3.5 mm). It belongs to the *longipilus* group of species characterised by non-raptorial fore legs and ornamented hind legs; the costa runs around the wing. The group probably represents a new subgenus or even genus of the family to be created in the future. *Cymatopus* is close to *Cemocarus*, differing in rounded postpedicel without dorso-apical excavation, with apical stylus; 7<sup>th</sup> male tergum greatly reduced.

### ***Epithalassius* Mik, 1891 (Figs. 115-118)**

The genus is mainly Mediterranean, with seven species commonly occurring on sand beaches near the sea coast. Nevertheless, *E. africanus* Parent, 1930, is described from environs of Brazzaville, far from the Ocean. The species is known by a female that does not entirely correspond to generic concept of *Epithalassius*, being also the only non-maritime species in the genus. Unfortunately, antennal postpedicel is partly broken in the holotype; therefore, it is impossible to be confident in generic assignment of the species. Vanschuytbroeck (1976) recorded *E. corsicanus* Becker, 1910, from St. Helena. Body medium-sized. Labellae normal in lateral view, without long protruding hypopharynx; antennal postpedicel bisegmented; stylus dorsoapical or strictly subapical; prescutellar depression developed; wing crossvein *dm-cu* located just behind level of  $R_1$ ; abdomen without strong posterior marginal setae on terga; hypopygium small; epandrial lobes well developed, bearing strong apical setae; cercus bilobate. A key to known species was provided by Grichanov (2008b).

### ***Hydatostega* Philippi, 1865 (Figs. 119-122)**

This genus was restored and separated from *Hydrophorus* by Hurley (1995). Three species of the genus are known from the Nearctic and restricted mainly to montane regions (Pollet et al., 2004). At least five species have been found in the Neotropics; they are confined to high altitudes or high latitudes (Hurley, 1995). Two of these species are known from the Juan Fernández Islands in the Pacific Ocean, and one species, from the environs of the Strait of Magellan (Robinson, 1970). All three Atlantic *Hydatostega* species inhabit three major Tristan da Cunha islands. *Hydatostega* is close to *Hydrophorus*, differing in anepimeron bearing seta or tuft of fine hairs anterior of posterior spiracle. The last key to these species was provided by Grichanov (2005).

### ***Hydrophorus* Fallén, 1823 (Figs. 123-126)**

*Hydrophorus* includes 119 species, of which 12 occur in the Afrotropical Region. Body medium- to large-sized. Head with distinct cheek; antennal postpedicel with apical incision; scutellum usually with 2 pairs of scutellar bristles; fore femur distinctly swollen, with ventral spines; fore tibia with a row of ventral bristles. A key to species was provided by Grichanov (1997a).

### ***Liancalus* Loew, 1857 (Figs. 127-130)**

The Afrotropical Region includes 6 of the 19 described species of *Liancalus*. This genus is uniquely characterized by a fingerlike projection on the proepimeron. Body large-sized. Scutellum usually with 3 pairs of bristles; hind femora cylindric; hind tarsomeres 1–2 much elongated, subequal in length; males and often females with wing veins variously modified, but  $M_{1+2}$  without double right angle bend; crossvein *dm-cu* distinctly oblique, much longer than distal section of  $CuA_1$  vein. A key to afrotropical species was provided by

Dyte (1967). Later one more species, *L. dytei* (Negrobov et al., 1987), was described from DR Congo.

### ***Machaerium* Haliday, 1832 (Figs. 131-133)**

This genus includes three western Palaearctic species, of which Mediterranean *M. thinophilum* (Loew, 1857) is here recorded from the Afrotropics for the first time (Tanzania: Kimboza Forest Reserve, 11.IX.1977, leg. Mahunka; a male in the collection of the Hungarian Natural History Museum, Budapest). Body medium-sized. Facial suture indistinct or hardly marked at eye margin; postpedicel usually elongate in male, shorter in female, bulbous at base and abruptly narrowed distally, with acute apex; stylus apical or strictly subapical; acrostichal setae in two regular rows; hind coxa with 2 erect black outer bristles;  $R_{4+5}$  and  $M_{1+2}$  parallel at apex;  $M_{1+2}$  weakly sinuate. See Parent (1938) and Maslova & Negrobov (2006) for redescrptions and key to species.

### ***Orthoceratium* Schrank, 1803 (Figs. 134-137)**

Two species are known from West Palearctic, of which *O. lacustre* (Scopoli, 1763) was recorded from Tanzania (Grichanov, 1997a). See Negrobov (1979) for redescrptions. Body large-sized. Scutellum with 2 pairs of bristles; hind femur flat; wing veins unmodified except  $M_{1+2}$  with two right angle bends in male, moderately sinuous in females.

### ***Thinophilus* Wahlberg, 1844 (Figs. 138-141)**

Twenty two of the 120 described species of *Thinophilus* occur in the Afrotropical Region. *T. indigenus* Becker, 1902, has a broad distribution including the southern Palaearctic, Oriental and Afrotropical Regions. Body small- to large-sized. Acrostichals absent; 4–6 dorsocentrals; scutellum with 2 or 4 strong bristles; arista-like stylus dorsal, rarely apical (males) or subapical (females); tibia usually with strong setae;  $M_{1+2}$  usually curved. The last key was provided by Grichanov (1997b).

## **Subfamily Medeterinae**

### ***Corindia* Bickel, 1986 (Figs. 142-145)**

This genus was originally described from Australia by 9 species (Bickel, 1986). Four species were later described from the savanna belt of tropical Africa (Grichanov, 1998d, 2000b), and 10 undescribed species were mentioned from Costa Rica (Bickel, 2009). It is closely related to the stem-mining genus *Thrypticus*, differing in female oviscapt soft rather than blade-like and sclerotized, male surstylus and cercus usually not deflexed dorsad. A key to three afrotropical species was provided by Grichanov (1998d).

### ***Craterophorus* Lamb, 1922 (Figs. 146-149)**

This genus is endemic of western Indian Ocean islands, with 5 species described from Madagascar, Mauritius and Seychelles. The following characters are considered to be of generic importance: acrostichal setae absent; 5 pairs of dorsocentral setae of approximately equal length; arista-like stylus dorsal;  $R_{4+5}$  and  $M_{1+2}$  weakly or strongly convergent; male 1<sup>st</sup> tergum with a pair of dorsal bulbs; female with several strong bristles at the same place. A key was provided by Grichanov (1998e).

### ***Demetera* Grichanov, 2011 (Figs. 150)**

Eight species included formerly in the *Medetera melanesiana* group of species (Bickel, 1987; Grichanov, 2009a) are known from Old World tropics. The genus is the closest to *Saccopheronta*. *D. demeteri* (Grichanov, 1997c) is the only afrotropical species (Ethiopia). Antenna black; face and clypeus usually shiny metallic blue-violet; dorsocentrals strong, prominent, usually 4-5 present; acrostichals well developed, biseriate; lateral scutellar setae present; mid and hind femora bare of major anterior preapical seta; male fore leg normal, without flattened tarsomeres; male hind femur with rows of long anterior and anteroventral setae;  $M_{1+2}$  not strongly arched, but lies almost subparallel to  $R_{4+5}$ ; tendency in some species for the distal half of male abdominal segment 6, all of segments 7 and 8, and basal portion of epandrium to be pale cream and weakly sclerotized, in contrast with metallic green of anterior segments; tendency for hypopygial foramen to become dorsobasal in position; epandrium strongly flattened dorsoventrally; only single (dorsal) surstylar arm present, and tending towards prolongation (ventral surstylar arm totally absent or present only as seta-bearing mound); surstylus fused to epandrium, without evidence of suture; aedeagus sometimes with internal appendix; cerci fused medially, usually with elongate ventrolateral arm, separated by furrow from the more dorsobasal portion.

### ***Dolichophorus* Lichtwardt, 1902 (Figs. 151-154)**

The formerly palearctic genus *Dolichophorus* was considered the sister taxon of the *Medetera aberrans* + *melanesiana* species groups (Bickel, 1987). Bickel supposed that these groups could be placed within the *Dolichophorus*. Grichanov (1997c) considered the *aberrans* group as a Pantropical genus *Saccopheronta* Becker and supposed that *melanesiana* group should be separated in an independent genus of Medeterinae. Grichanov (2009a) has found three species of *Dolichophorus* in the Afrotropical Region (D.R. Congo, Tanzania, Ivory Coast, Sierra Leone, Madagascar) in addition to three palearctic species and supposed that *M. maai* Bickel, 1987, described from Malaysia belongs to *Dolichophorus*. Additionally, *Medetera hamata* Parent, 1936, known from D.R. Congo, is remarkable in having strong apical spine on fore coxa in both sexes (Parent, 1936), the diagnostic character of the genus *Dolichophorus*. Size 1.5 to 3.0 mm; body usually shining, weakly pollinose; fore coxa with long anteroapical spine or hook of cilia, shorter in females; at least fore and hind coxae yellow; male fore tarsomeres 1 and 3 usually modified, with remarkable apical setae or processes, rarely simple, but with slightly thickened tarsomeres 1-4;  $R_{4+5}$  and  $M_{1+2}$  weakly convergent, almost subparallel. A key to 6 known species was provided by Grichanov (2009a).

### ***Euxiphocerus* Parent, 1935 (Figs. 155-158)**

The genus *Euxiphocerus* was described by a single species *E. wulfi* Parent, 1935, from the Rutshuru River area of the Democratic Republic of the Congo. Grichanov (2009b) described two new species of the genus, considering the *Euxiphocerus* as a member of the medeterine tribe Systemini. At present the species of the genus are known from DR Congo, Kenya, South Africa and Namibia. The following character states are common to *Euxiphocerus* and *Systemus*, distinguishing them from other Medeterinae and Systemini:  $R_{4+5}$  and  $M_{1+2}$  subapically bowed; distal sector of  $R_{4+5}$  and  $M_{1+2}$  with flexion; posterior pair of acrostichals is distinctly larger than preceding pair and offset laterally; 6 strong dorsocentrals; male postpedicel elongate, tapering; 7<sup>th</sup> male abdominal segment with tergum and sternum distinct. *Euxiphocerus* differs from *Systemus* in the following characters: postocular bristles flattened; male antennal pedicel greatly reduced; male postpedicel 5–6 times longer than high at base; male 7<sup>th</sup> abdominal segment short;



hypopygium sessile, with large epandrial lobe, with broad and deeply divided dorsal and ventral arms of surstylus. A key was provided by Grichanov (2009b).

### ***Grootaertia* Grichanov, 1999 (Figs. 159-163)**

Seven species of *Grootaertia* were described from South Africa and one species from Namibia (Grichanov, 1999a, 2000b; Grichanov et al., 2006). One more South African species awaits description. The genus is most close to *Paramedetera*, differing in apical arista-like stylus; distal sectors of  $R_{4+5}$  and  $M_{1+2}$  weakly arched anteriorly; 7<sup>th</sup> abdominal segment semicircular, narrow, not forming pedicel; hypopygium sessile, asymmetrical; hypandrial lobes absent; phallus with large lateral lobes; female oviscapt with simple fused 9<sup>th</sup> hemitergites bearing simple setae. The morphology of male and female genitalia in *Grootaertia* species is rather primitive and variable. Therefore, the genus is likely to be the most ancestral group of the subfamily. A revised key was provided by Grichanov et al. (2006).

### ***Medetera* Fischer von Waldheim, 1819 (Figs. 166-169)**

The Afrotropical Region includes 36 of the 330 described species of *Medetera*. Tiny to medium-sized flies (1.2–5 mm). Fore coxa with short anteroapical setae not forming spine or hook; all coxae dark or only fore coxa yellow, rarely fore and hind coxae yellow; body rarely shining;  $R_{4+5}$  and  $M_{1+2}$  strongly convergent; *dm-cu* distinctly shorter than or (rarely) equal to maximum distance between  $R_{4+5}$  and  $M_{1+2}$ ; apical part of  $CuA_1$  usually less than 2.5 times longer than *dm-cu*; male anterior tarsus simple, rarely with elongate hairs; if  $R_{4+5}$  and  $M_{1+2}$  weakly convergent, then *dm-cu* distinctly shorter than maximum distance between  $R_{4+5}$  and  $M_{1+2}$ . A key to afrotropical species was provided by Grichanov (1999a). Later 9 more new species and subspecies were described (Grichanov, 2000b).

### ***Medeterella* Grichanov, 2011 (Fig. 164)**

Nine species included formerly in the *Medetera salomonis* group of species (Bickel, 1987a; Grichanov, 1997d) are known from Old World tropics. The genus resembles superficially *Nikitella*, strongly differing in male postabdomen morphology and other characters. *M. pospelovi* (Grichanov, 1997d) is the only afrotropical species (Ghana). Antennal colour either all black or with scape and pedicel yellow; thoracic setae black; acrostichal setae present, biseriate; either 4-6 dorsocentrals present, or with 2-3 strong dorsocentrals bordering mesoscutal depression and only short setulae present anteriorly; lateral scutellar setae present; mid and hind femora bare of major anterior preapical seta; males with subapical dorsal seta on hind tibia; males sometimes with distinctive ventral setae on mid and/or hind femora, or with orientated silvery pruinosity; wing vein  $M_{1+2}$  bowed posteriorly beyond *dm-cu*, slightly flexed just before apex; surstylus usually fused into single arm, with membranous attachment to epandrium or fused to the latter; cercus secondarily segmented, with distal section of cercus articulated with basal section; tendency for distal section of cercus to become enlarged and expanded, sometimes with corresponding decrease in strength of surstylus. As noted by Bickel (1987a), the secondary segmentation and articulation of the cercus is an unusual character, possibly unique in the Diptera Brachycera.

### ***Nikitella* Grichanov, 2011 (Figs. 170-173)**

*Nikitella* includes the single species *N. vikhrevi* (Grichanov, 2011b), from Senegal. Antennal colour black; facial suture distinct at eye margins only; thoracic setae light brownish, mostly short; acrostichal setae present, biseriate; one pair of long dorsocentrals present; lateral scutellar setae present; mid and hind femora bare of major anterior preapical seta; males without subapical dorsal seta on hind tibia; males with distinctive

ventral setae on fore and mid femora; hind femur with row of strong anterodorsals; wing vein  $M_{1+2}$  bowed posteriorly beyond *dm-cu*, slightly flexed just before apex; male postabdomen symmetrical and segments 7 and 8 reduced; hypopygium sessile; foramen positioned strictly basally and symmetrically in sagittal plane (unique to the subfamily); surstylus not fused to epandrium; male cercus simple.

### ***Paramedetera* Grootaert et Meuffels, 1997 (Fig. 165)**

This genus contains 15 oriental species and one afrotropical species *P. sierraleonensis* Grichanov from Sierra Leone (Grichanov, 1999a). *Paramedetera* are minute species on slender, unbristled legs with a medeterine stature. They share with the Medeterinae a strong proboscis, a quite elevated ocellar callus, a humpbacked thorax and a stalked hypopygium. The females have generally unmelanized areas on the terga. *Paramedetera* can easily be distinguished from *Medetera* because the veins  $R_{4+5}$  and  $M_{1+2}$  are not converging. Very few somatic characters are available to identify the species. Male genitalia are characteristic but should be macerated. On the other hand, the species are more easily recognized in the female sex, because they possess specific unmelanized areas on the terga (Grootaert & Meuffels, 1997a).

### ***Saccopheronta* Becker, 1914 (Figs. 174-177)**

The Pantropical genus with 47 described species including 14 afrotropical ones. It was synonymised with *Medetera* (Bickel, 1985), but was restored by Grichanov (1997c). Body small-sized; face and clypeus usually with pruinosity;  $R_{4+5}$  and  $M_{1+2}$  weakly convergent, almost subparallel; *dm-cu* about as long as or longer than maximum distance between  $R_{4+5}$  and  $M_{1+2}$ ; apical part of  $CuA_1$  usually 2-4 times longer than *dm-cu*; male tarsomeres 2 and 3 of fore leg thickened or enlarged and flattened; epandrium cylindrical, elongate, more than twice as long as high; hypopygial foramen always dorsolateral in position with tendency to becoming median. A key to afrotropical species was provided by Grichanov (1999a).

### ***Systemomorphus* Grichanov, 2010 (Figs. 178-181)**

This monotypic genus differs from other systemin genera in the following characters: body mainly black; antennal postpedicel elongate-ovoid, with rounded apex, flattened laterally, at most 2 times as long as its basal height, as long as high in female, antennal pedicel reduced in both sexes; stylus subapical-dorsolateral; postocular bristles flattened;  $R_{4+5}$  and  $M_{1+2}$  subapically parallel; 2<sup>nd</sup>–6<sup>th</sup> sterna membranous or only weakly sclerotized; hypopygium pedunculate, with setosed peduncle; hypandrium bilobate; aedeagus trilobate; epandrium deeply emarginated laterally at middle, with surstylus fused with cercus, forming left and right semi-cylinders; epandrial lobe large, with more than two epandrial setae; strong lateral epandrial setae in distal half of epandrium; male cercus with small distal setose lobe (*Thrypticus*-like). *S. katyushae* Grichanov was described from South Africa (Grichanov, 2010e). Body size, 2.7 mm.

### ***Systemoneurus* Grichanov, 2010 (Figs. 182-185)**

This monotypic genus differs from other systemin genera in the following characters: body mainly brown-black; antennal pedicel reduced, with two apicodorsal setae long in both sexes, 2/3 length of scape; male postpedicel elongate-triangular, flattened laterally except base, 2 times as long as its basal height; stylus longer than postpedicel, subapical-dorsolateral; postocular bristles simple; male fore tarsus with 4–5<sup>th</sup> segments and claws distinctly modified; 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> sterna well sclerotised, segment 6 mostly concealed, glabrous, with small triangular posterodorsal emargination in middle; segment 7 with tergite and sternite distinct, glabrous; tergite 7 forming very narrow ring within segment 6;

sternite 7 forming two small rounded plates at apex of segment 8; tergite 8 large, covering epandrium almost totally (lateral aspect); sternite 8 present as pair of very small baculiform sclerites at narrow ventral apex of tergite 8; hypopygium sessile; hypandrium bilobate; aedeagus trilobate; epandrium without ventral epandrial lobes; surstyli with left and right dorsal lobi asymmetric; cerci fused at base. *S. ovechkiniae* Grichanov was described from Madagascar (Grichanov, 2010e). Body size, 2.9 mm.

### ***Systemus* Loew, 1857 (Figs. 186-187)**

Until recently the genus was known from the Holarctic Realm only. New palearctic, australian, afrotropical, neotropical and oriental species were described during the last decades. Now 28 species are known in the World. Size usually 2.0 to 3.0 mm; postocular bristles simple;  $R_{4+5}$  and  $M_{1+2}$  subapically bowed; distal sector of  $R_{4+5}$  and  $M_{1+2}$  with flexion; posterior pair of acrostichals distinctly larger than preceding pair and offset laterally; usually 6 strong dorsocentrals; antenna sexually dimorphic; male antennal pedicel not reduced; male postpedicel elongate, swollen at base, tapering, with apical or strictly dorsoapical stylus; male 7<sup>th</sup> abdominal segment with tergum and sternum distinct, long, forming peduncle for hypopygium; dorsal and ventral arms of surstylus usually fused, with emargination at apex, or only ventral arm broad; epandrial lobe usually reduced to 2 pedunculate setae; female terga 9+10 divided medially into 2 hemitergites, each bearing a row of 4 spines. Grichanov & Mostovski (2009b) have discovered the genus in the South Africa with one described (*S. africanus* Grichanov, 2009) and at least one undescribed species.

### ***Thrypticus* Gerstäcker, 1864 (Figs. 188-191)**

Of the 90 described species of *Thrypticus*, 7 occur in the Afrotropical Region. Small species;  $R_{4+5}$  and  $M_{1+2}$  behind mid wing parallel to apex;  $M_{1+2}$  without flexion; usually 5 or fewer dorsocentrals; antenna usually similar in male and female; male postpedicel usually short, rounded; acrostichal setae present; hind coxa with 2 lateral setae; body coloration usually bright metallic green; female oviscapt blade-like, sclerotized, narrow in dorsal view; male 7<sup>th</sup> abdominal segment with tergum and sternum fused or sternum greatly reduced; male surstylus strongly deflexed dorsally, usually lying conformably with similarly deflexed, oblong-shaped cerci. A key to afrotropical species was provided by Grichanov (1999a). Later one more new species was described (Grichanov, 2000b).

## **Subfamily Neurigoninae**

### ***Neurigona* Rondani, 1856**

There are 157 described species worldwide. Two records of unidentified females from the Afrotropics (Seychelles and Central Africa) have been published (see Grichanov, 2010f). Antenna yellow or brownish; thorax usually yellow, sometimes with metallic green spot(s), rarely wholly metallic green; acrostichals biseriate; legs yellow, mid and hind femora without anterior preapical bristle; wing anal vein usually well developed, reaching wing margin. Male genitalia large and mostly exposed; surstylus very large and broad, partly covering cercus, divided into two partly overlapping arms; cercus with broad base.

### ***Tenuopus* Curran, 1924 (Figs. 192-195)**

This genus is endemic of continental Tropical Africa, with 13 described species. Long, mostly yellow body; one pair of ocellar, occipital and postvertical bristles; proboscis with a pair of black lateral setae and yellow hairs; scape bare, pedicel with digitiform appendix

upon first flagellomere, more developed in males; arista dorsal, short pubescent. Mesonotum convex, no mesoscutal flattening; six or seven dorsocentral bristles with first bristle somewhat smaller; scutellum with two strong bristles. Legs mostly yellow, coxae with yellow hairs and black bristles, hind coxa with one external bristle; mid and hind femora usually with one subapical seta. Wing vein  $R_{2+3}$  reaches costa in apical fifth of wing, being nearly parallel with  $R_{4+5}$ ;  $M_1$  with gentle arc to apex, reaching costa before wing apex, near  $R_{4+5}$ ;  $M_2$  usually present as fold on membrane; *dm-cu* straight, *bm-cu* reduced. Abdomen of six segments with strong marginal bristles, without tergal window in segment 1, and with less sclerotised "pseudotergite" between segments 1 and 2; 7<sup>th</sup> segment and hypopygium small, epandrium usually concealed; cercus short and simple, surstylus usually long, often bifurcated; at least one very long and a few short epandrial lobes. Convex mesonotum and subapical femoral setae do not agree with a concept of the subfamily Neurigoninae. However, the general habitus and remarkable male secondary sexual characters in some species (such as ornamented fore tarsus and enlarged surstylus) do not allow to place *Tenuopus* out of the subfamily. A key was provided by Grichanov (2000a).

### Subfamily Peloropeodinae

#### *Acropsilus* Mik, 1878 (Figs. 196-199)

Of the 30 described species of *Acropsilus*, 8 occur in the Afrotropical Region. *A. brevitatus* (Parent, 1937) described from Afrotropics was found in Israel. Ulrich (1981) and Bickel (1998) considered *Acropsilus* incertae sedis, rejecting its placement in Peloropeodinae and Grichanov (1998) associated the genus with the Diaphorinae. Yang *et al.* (2006) followed Negrobov (1991), placing it in the Peloropeodinae. Small species; body less than 2 mm, mostly black; bristles on head and thorax dark; posterior slope of mesonotum slightly flattened but not depressed; acrostichal setae absent; veins  $R_{4+5}$  and  $M_{1+2}$  more or less parallel; hind basitarsus distinctly shorter than 2<sup>nd</sup> tarsomere; male cercus usually white-ivory coloured and subtriangular, and bearing pale setae; female clypeus with 4 setae. Grichanov (1998f) provided a key to afrotropical species. Grichanov *et* Mostovski (2009a) placed *Campsicnemoides* Curran, 1927 in synonymy with *Acropsilus*.

#### *Griphophanes* Grootaert *et* Meuffels, 1998 (Figs. 200-203)

The genus was described for a single species *G. gravicaudatus* (Grootaert *et* Meuffels, 1997b; as *Griphomyia*) from Thailand, though Lim *et al.* (2010) have mentioned an undescribed oriental species of the genus. Grichanov (2010g) described new species *G. congoensis* and *G. garambaensis* from savannahs of D.R. Congo. Grootaert & Meuffels (1997b) distinguished their new genus from other Peloropeodinae mainly by the presence of a distinct anal vein which runs parallel to the hind margin of the wing and a stalked hypopygium which lies free under the abdomen. Indeed, species of the type genus *Peloropeodes* Wheeler, as well as of *Micromorphus* and *Meuffelsia* have sessile hypopygium with very short segment 7. Nevertheless, some species of *Peloropeodes* and *Micromorphus* have weakly developed wing anal lobe (e.g., Grichanov, 2000c) and one of the afrotropical species of *Griphophanes* has normal anal lobe. The type species was described with 5 dorsocentrals and uniseriate acrostichals, while both afrotropical species bear an additional small 6<sup>th</sup> dorsocentral seta anteriorly and biseriate acrostichals. *Griphophanes* is probably the only peloropeodine that lacks a carina at the inside of male abdominal segment 8 (Lim *et al.* 2010). The *G. garambaensis* is remarkable in having highly elongate hypopygial peduncle. Consequently, the genus *Griphophanes* is distinguishable from *Peloropeodes* at present by

only male secondary sexual characters. A key to all species was provided by Grichanov (2010g).

### ***Meuffelsia* Grichanov, 2008 (Figs. 204-206)**

This genus is endemic of South Africa, with two described species (Grichanov & Mostovski, 2008). Length less than 2.0 mm; body dark, with dark setae; dorsal part of postcranium slightly concave; face without setae, relatively broad, slightly narrowed downward; pedicel globular; postpedicel small, subtriangular; stylus dorsoapical; labella with 6 pseudotracheae; posterior part of mesonotum distinctly flattened and slightly depressed; acrostichals biserial; 6 dorsocentrals; scutellum with 2 strong bristles and 2 minute adjacent lateral hairs; fore and mid coxae with anterior and apical cilia; hind coxa with 1 seta at middle; legs simple, with simple setae; mid and hind femora with strong anterior subapical seta; hind tarsus simple; wing nearly as long as body, relatively broad; *dm-cu* short; segment 7 small, with tergum broad and sternum reduced; segment 8 large; hypopygial foramen left lateral; hypopygium with rounded-ovate cercus; hypandrium long and thick, asymmetrical, fused at base to epandrium; ventral surface of epandrium bare; surstyli asymmetrical, with left dorsal arm shorter or longer than right one, both broad, bearing a few short setae, and ventral arms of surstyli subequal in length, thin, directed ventrad, bearing a few short setae at apex; oviscapt with tergum 9+10 split medially into two arcuate narrow hemitergites, each bearing 4 short black acanthopores; female cercus short, widened distad; anal plate broad, wider than long.

### ***Micromorphus* Mik, 1878 (Figs. 207-210)**

There are 3 described afrotropical species of 28 world ones (Grichanov & Mostovski, 2009a). Minute species; acrostichal setae absent; arista-like stylus dorsal; scutellum with only one pair of setae; hind femur with true subapical bristle; male hind basitarsus without basal spur curved upward; crossvein *dm-cu* rather short, at least 4 times shorter than apical part of *CuA<sub>1</sub>*; hypopygium sessile. There are no suitable keys to the afrotropical fauna.

### ***Nepalomyia* Hollis, 1964 (Figs. 211-214)**

This genus is mainly an oriental one with totally 65 known species, of which four species are known from the Nearctic, two species from the Afrotropics and two species from the Palearctic Region (China and the Russian Far East). I saw material with additional undescribed species from Mauritius. Grichanov (2010g) described new species *N. kotrbae* and *N. reunionensis* from Reunion. Body minute to small-sized; upper occiput distinctly concave; male face distinctly narrowed downward; arista-like stylus apical or subapical, inserted in notch of postpedicel; acrostichals distinct, usually biserial; scutellum with 2 pairs of bristles, lateral pair very short and hair-like; crossvein *dm-cu* at most 2–3 times shorter than apical part of *CuA<sub>1</sub>*; male with symmetrical claws on fore tarsus; male mid coxa without apical spine of glued cilia; abdomen as long as thorax; hypopygium sessile, rather large and mostly exposed. Revising the genus *Nepalomyia*, Runyon & Hurley (2003) provided a diagnosis with major characters that are rather common in other genera of the subfamily. Wang *et al.* (2009) diagnosed the genus as having the arista-like stylus arising from the apical concavity of the postpedicel and hind tarsomere 1 of males with a basal spur directed upwards. Nevertheless, species of the genus *Acropsilus* also have the arista-like stylus arising from the apical concavity of the postpedicel and species of the other genera of the *Peloropecodes* group (except *Micromorphus*) also have male hind basitarsus bearing a basal spur directed upwards (e.g., Grichanov, 2000c; Grichanov & Mostovski, 2008). Bickel (2009) distinguishes the New World *Nepalomyia* from *Peloropecodes* by biserial vs. uniserial acrostichals. However,

all Old World *Peloropecodes* species have biserial acrostichals (Grichanov 2000c), while some of the oriental species of *Nepalomyia* bear irregularly paired acrostichal setae that are totally lost in at least *N. pingbiana* (Yang et Saigusa, 2001). Having reduced male segment 7 and enlarged hypopygium, *Nepalomyia* is close to *Peloropecodes*, differing in apical or subapical arista-like stylus and in shape and setation of hypopygial appendages. In addition, males of *Peloropecodes* have fore tarsus with asymmetrical claws and mid coxa usually bearing an apical spine of glued cilia. Nevertheless, new species described recently in both genera diffuse their border step by step.

### ***Peloropecodes* Wheeler, 1890 (Figs. 215-218)**

This genus includes 29 described species, of which five are known from the Afrotropical Region (Grichanov, 2000c; Grichanov & Mostovski, 2009a). Body small-sized; male face distinctly or strongly narrowed downward; one longer dorsal seta on antennal pedicel; arista-like stylus dorsal; usually six pairs of dorsocentral bristles; acrostichal setae in two regular rows; one strong and one hairlike intraalar setae, one strong propleural seta; male with asymmetrical claws on fore tarsus; male mid coxa usually with apical spine of glued cilia; male hind tarsus simple; crossvein dm-cu straight, positioned at middle of wing, forming right angles with  $M_{1+2}$  and  $CuA_1$ , at most 2–3 times shorter than apical part of  $CuA_1$ ; abdomen as long as thorax, with reduced 5–6<sup>th</sup> sternite; hypopygium sessile. It is worth noting that the nearctic species of *Peloropecodes* have uniserial acrostichals (Bickel 2009), while palearctic and afrotropical species of the genus have biserial acrostichals. There are no suitable keys to the afrotropical fauna.

## **Subfamily Rhapsiinae**

### ***Rhaphium* Meigen, 1803 (Figs. 219-222)**

*Rhaphium* comprises about 200 described species including 15 from the Afrotropical Region. Body small to large-sized (1.5–5.7 mm), but usually small in African species. Upper part of proepisternum in front of anterior spiracle with long hairs; postpedicel triangular, and usually much longer than basal width; arista-like stylus strictly apical; male cercus often elongate; veins M and  $R_{4+5}$  often slightly bowed with respect to each other. A key to the afrotropical species of the genus was provided by Grichanov (1995), though some synonyms were later established (Grichanov, 2001).

## **Subfamily Sciapodinae**

### ***Amblypsilopus* Bigot, 1888 (Figs. 223-226)**

Bickel (1994) restored the genus that accommodates now about 320 species known from all parts of the continental tropics and subtropics and from adjacent islands. 49 afrotropical species are known from the continent and from adjacent islands (Madagascar, Reunion). Some of them were previously included in *Sciopolina* Curran, 1924, that is characterised by modified wing venation. *Ethiosciapus prysjonesi* Meuffels et Grootaert, 2007, described from Seychelles also belongs to this genus [*Amblypsilopus prysjonesi* (Meuffels et Grootaert, 2007), **comb. nov.**]. *Amblypsilopus* is not strongly defined, and it represents a large pan-tropical genus which is possibly polyphyletic (Bickel, 1994). Body usually appearing delicate, with elongate legs; vertex distinctly excavated; male vertical bristle usually weak and reduced; female vertical bristle always strong; male clypeus

narrowed and distinctly free from eye margin; female clypeus always adjacent to sides of eyes; pedicel with short dorsal and ventral bristles; postpedicel usually subrectangular to subtriangular; arista-like stylus usually distinctly dorsal, and rarely longer than head width, or if apical or dorsoapical, then always with following characters: male arista-like stylus rarely with apical flag; tibial chaetotaxy often weak, especially in males; acrostichals biseriate, usually with 3-6 pairs, never sexually dimorphic. 4-5 paired dorsocentrals, male usually with anterior dorsocentrals weak and hair-like; 2 paired scutellars, lateral pair weak and short. Femora almost always without strong ventral bristles; major dorsal bristle in mid tibia usually present in females but absent in males; male hind tarsomeres 3-5 sometimes flattened ventrally and padlike; wing usually hyaline, but sometimes with apical maculations; crossvein *dm-cu* straight and usually forming right angle with vein M; hypandrium asymmetrical, with narrow left lateral arm; aedeagus with dorsal angle; epandrial lobe with 2 strong apical bristles; surstylus often with large ventral lobe and digitiform dorsal projection; cercus various. A key to afrotropical species was provided by Grichanov (1998g), though some more species were later described (Grichanov, 1999b, 2003) and some more are waiting descriptions.

### ***Bickelia* Grichanov, 1996 (Figs. 227-230)**

This monotypic genus is similar to *Sciapus* (sensu Bickel, 1994) and *Mascaromyia* in thoracic chaetotaxy, and overall habitus. It is clearly distinguished from other genera of Sciapodinae by distinct anterior preapical seta on mid and hind femora, narrow tomentous face and frons, presence of vertical setae in both sexes, presence of 2 fine ventral propleural setae, branched vein M, modified hypopygium (Grichanov, 1996a). *B. parallela* (Macquart, 1842) is known from Mauritius, Seychelles and Chagos Archipelago, being probably an old colonist giving adaptive radiation of numerous neo-endemic species of *Mascaromyia* on western Indian Ocean islands.

### ***Bickeliolus* Grichanov, 1996 (Figs. 231-234)**

This genus (originally subgenus of *Ethiosciapus*) includes 7 species from Continental Africa, Seychelles and Madagascar (Grichanov, 1996b), differing from *Ethiosciapus* in strong vertical seta on male frons; usually bare femora; cercus usually with apical brush of long hairs; acrostichals short or absent; alula usually reduced. *Mascaromyia gerlachi* Meuffels et Grootaert, 2007, described from Seychelles also belongs to this genus [*Bickeliolus gerlachi* (Meuffels et Grootaert, 2007), **comb. nov.**]. A key was provided by Grichanov (1998g).

### ***Chrysosoma* Guérin-Méneville, 1831 (Figs. 235-239)**

There are 238 described world species (inhabiting Old World tropics mainly) species, of which 68 occur in the Afrotropical Region. This sciapodine genus is close to *Plagiozopelma* Enderlein, 1912, differing in following characters: vertex and frons usually with pruinosity; male frons often with hairs on lateral slope; male scape rarely swollen and vasselike; pedicel often with long ventral and dorsal setae; fore coxa without strong lateral spine-like setae. Body often stout, large; vertex strongly excavated in both sexes; strong postvertical seta present, in line with postocular bristles; male frons usually with group of fine setae or with weak vertical seta; female frons with strong vertical bristle; postpedicel of both sexes usually elongate triangular; apical arista-like stylus, much longer than width of head; acrostichals developed as 3-5 strong pairs; male usually with 2 strong posterior dorsocentrals and weak hair-like anterior dorsocentrals; female usually with 5 strong dorsocentrals; lateral scutellar bristles weak, even lost; fore femur usually with strong ventral bristles; fore tibia usually with strong dorsal chaetotaxy; wing usually hyaline but sometimes with brown maculations; crossvein *dm-cu* usually sinuate, sometimes



externally convex or bowed; if crossvein *dm-cu* straight, it makes an acute angle with M; hypandrium with narrow left lateral arm; aedeagus with dorsal angle; epandrial lobe with 2 strong apical bristles; surstylus usually with large ventral lobe and digitiform dorsal projection; cercus mostly forked. Grichanov (1995b, 1999b) recognised three subgenera including nominotypical one, of which *Kalocheta* Becker and *Mesoblepharius* Bigot seem to be confined to Tropical Africa, characterizing by very long posterior or posterodorsal setae on male mid basitarsus and usually on mid tibia; *Kalocheta* is further characterizing by male and female arista-like stylus that is strongly flattened and strap-like with hairlike apical part. *C. snelli* Curran, 1927 is remarkable in its distribution from coasts of Tanzania and Kenya across Madagascar, Reunion, Mauritius, Aldabra, Rodriguez and Seychelles to western Indian coast (Goa), Chagos Archipelago and Maldives (closely related *C. leucopogon* (Wiedemann, 1824) is distributed from western Indian coast to Pacific islands and coasts of China and Australia). A key to afrotropical species was provided by Grichanov (1998g).

### ***Condylostylus* Bigot, 1859 (Figs. 240-243)**

The genus includes about 300 species, being mainly Pantropical with an extremely high diversity in the Neotropical Region and reaching to the southern Palaearctic Region in the Far East (Bickel, 1994). Afrotropical fauna was recently studied by Grichanov (1996c, 1998g, 1999b, 2000b, 2003, 2010h), reaching to 21 species (excluding species transferred to *Parentia*). They form three distinct species groups. In fact, only *C. paricoxa* species group has all characters typical of generic concept (Bickel, 1994). *C. pateraeformis* group seems to be confined to Afrotropical Region, characterizing by abnormal wing venation, while *C. burgeoni* group (= *Aldabromyia* Meuffels & Grootaert, 2007) is a transitional group between the former two ones. Generally, frons of both sexes with raised setose mound bearing strong vertical seta; M beyond M<sub>2</sub> usually sharply recurved basally; both pairs of scutellar bristles long; wing often with dark brown bands, sometimes enclosing clear window; arista-like stylus dorsal to dorsoapical; pedicel with long dorsal and ventral setae; both sexes with 4-5 strong dorsocentrals; hypopygium often rather small. A key to the afrotropical species of the genus was provided by Grichanov (1998g); a key to *pateraeformis* group - by Grichanov (2003); a key to *paricoxa* species group - by Grichanov (2010h).

### ***Dytomyia* Bickel, 1994 (Figs. 244-245)**

Five species of the genus *Dytomyia* are known from Australia and New Guinea and five species from Madagascar (Grichanov, 2003). Vertex not strongly excavated; postvertical setae strong; vertical seta strong in both sexes; face and clypeus broad in both sexes, and male clypeus adjacent to lateral eye margins or only slightly separated; postpedicel rounded subtriangular; arista-like stylus various, dorsoapical to apical, and length about equal to head height. Acrostichals usually short and irregularly paired, or absent; 4 strong dorsocentrals present in both sexes, not dimorphic; median scutellar setae strong, laterals absent. Legs mostly yellow, not greatly elongated; female fore femur with 3-4 short pale basoventral setae; male fore basitarsus swollen, and basally forming ventral cushion with dense pale pile; male hind tibia sometimes with irregular swelling or callus at half. Wing crossvein *dm-cu* straight or gently bowed. Abdominal vestiture rather reduced, consisting mostly of short hairs, with only a few strong setae along distal tergal margins; abdominal plaques reduced in size on male; phallus with dorsal angle; cercus with short ventral section which arises at base and appears to be freely articulated with main cercal body, and is perhaps homologous with "Organ X" of *Sciapus* (Bickel, 1994). A key to three afrotropical species of the genus was provided by Grichanov (1998g).



### ***Ethiosciapus* Bickel, 1994 (Figs. 246-249)**

This genus includes 9 species from Continental Africa, Madagascar, Comores, Seychelles and St. Helena, differing from close *Bickeliolus* Grichanov in male frons bearing a group of hairs laterally; femora usually with long black ventral hairs; cercus usually with short or long hairs, but without apical brush; 3 long acrostichal setae; alula well developed. A key was provided by Grichanov (1998g).

### ***Gigantosciapus* Grichanov, 1997 (Figs. 250-253)**

Thirteen species of the genus occur in humid tropics of continental Africa (Grichanov, 1997e, 1998g). *Gigantosciapus* has some similarities with *Plagiozopelma* and *Chrysosoma*, but has many differences such as follows. Vertical setae or hairs absent in both sexes; two pairs of strong postvertical setae placed far from line of postocular series; face and frons narrow; postpedicel very long, tapering into the long apical arista-like stylus; pleura usually yellow; acrostichals short and weak; 2 strong dorsocentral bristles and 3 or 4 weak hairs anteriorly in both sexes; all tibiae and basitarsomeres usually with strong bristles in both sexes; wing vein *dm-cu* straight or slightly convex, anal lobe and lower calipter usually reduced; phallus dorsally with a few denses; surstylus greatly developed; epandrial lobe prominent, but not prolonged and curved, with numerous setae; cercus and surstylus long and broad, simple. A key was provided by Grichanov (1998g).

### ***Mascaromyia* Bickel, 1994 (Figs. 254-257)**

There are 29 described species confined to western Indian Ocean islands including Chagos Archipelago (Grichanov, 1996d, 2003; Meuffels & Grootaert, 2007). Rather small, delicate sciapodines with elongate yellow legs. Male head higher than wide; vertex very shallowly excavated; frons polished metallic green; proclinate vertical setae present in both sexes, often more strongly developed in female; face and clypeus very narrow in both sexes, with male usually holoptic on the face and female almost holoptic; scape usually somewhat prolonged; scape and pedicel usually yellow, postpedicel black; arista dorsal, arising from base of postpedicel and not much longer than width of head. Thorax usually metallic green; acrostichals biserial, but highly reduced and often restricted to anteriormost mesonotum, or totally absent; dorsocentrals strong, 5-7 present, not sexually dimorphic; lateral scutellar setae absent. Some species with anteroventral row of black setae on male hind femur; female fore femur in basal third almost always with group of 3-5 strong ventral bristles, each bristle arising from a distinct mound-like pedicel; males with fore femur usually bare; femora usually without anterior preapical setae. Female and unmodified male wings with short M and M<sub>1</sub> arching and becoming subparallel with R<sub>4+5</sub>; *dm-cu* straight; male venation of Mauritius species often strongly modified. Male tergum and sternum 7 well developed; hypopygium showing wide range of morphological diversity; sometimes compact, with short modified cerci. *Mascaromyia* is similar to *Sciapus* (that absent on the islands) in many respects. Keeping in mind that some palearctic species of *Sciapus* are lacking anterior preapical seta on femora, and some undescribed species of *Mascaromyia* bear this seta, the two genera may be confidently recognized by male postabdomen morphology only. A key was provided by Grichanov (2003).

### ***Mesorhaga* Schiner, 1868 (Figs. 258-261)**

There are 96 world species including 7 afrotropical species. Hind femur only with anterior preapical bristle; propleuron without strong ventral setae; Vein M<sub>2</sub> absent, without fold or indication on membrane; dorsocentral bristles strong in both sexes; arista-like stylus usually dorsal; strong vertical seta present in both sexes; clypeus adjacent to

margin of eyes. A key was provided by Grichanov (1998g). Later two more species were described (Grichanov, 1999b, 2000b).

### ***Parentia* Hardy, 1935 (Figs. 262-265)**

*Parentia* is speciose in Australia and adjacent islands with about 70 known species (Bickel, 1994). It is the dominant sciapodine element in the New Zealand fauna, showing its possible Gondwanan origin. Five afrotropical species of the genus are confined to southern Africa. Male with pair strongly diverging ocellars and 2-3 pairs of shorter posterior setae on tubercle, which are weakly developed in female; postvertical setae strong, positioned as last of the postocular series; strong curved vertical seta present in both sexes; males sometimes with additional hairs on lateral slope of frons; face slightly bulging in male; face expanded laterally in males; clypeus often separated from face by strong frontoclypeal suture, especially in males; clypeus often semicircular in anterior view, and at most only slightly separated from sides of eyes in males; head often relatively wide and 'dumb-bell' shaped, and vertex usually strongly excavated; male pedicel sometimes with corona of strong apical setae; postpedicel subrectangular to subtriangular, with dorsal or dorsoapical arista. Acrostichals usually present as 2-4 long pairs, but sometimes reduced; male usually with 2 strong posterior dorsocentrals, and 3-4 distinctly weaker anterior dorsocentrals; female with 4-5 strong dc; lateral scutellar setae usually strong, about half to two-thirds length of medians. Femora in male often with long, distally decreasing anteroventral and posteroventral bristles whose colour, number and size are often species specific; female femora usually with much shorter anteroventral and posteroventral setae; Fore tibia usually bare of major setae; mid tibia usually with offset antero-posterodorsal setal pair in basal quarter, except where modified in males; male mid tibia and basitarsus sometimes covered with short black porrect setae or modified with rows of outstanding setae; male mid tibia from one-fifth to half usually with swollen callus with smooth excavated posterior groove; male hind tarsomeres 3-5 almost always flattened and padlike ventrally. Wing vein  $M_2$  usually arcuate and forming a broad U-shaped figure with  $M_1$ ; male costa usually with anteroventral row of crocheted or modified setae from base to end of  $R_{2+3}$  (sometimes absent); male  $R_1$  very long, extending subparallel to  $R_{4+5}$  to end in distal third of wing; female  $R_1$  usually ending in basal half of costa; crossvein *dm-cu* straight, and forming near right angle with *M*; haltere usually black in males and yellow in females. Abdomen usually entirely metallic green, without the matt brown tergal bands; abdominal terga with long black and sometimes undulating posterior setae; female terga 2-5 each with 3-4 abdominal plaques, reduced in size in male; hypandrial arm rather short, arising beyond midlength of hypandrium and usually extending only slightly beyond apex of hypandrial hood; aedeagus elongate, extending well beyond apex of hypandrial arm; dorsal angle present or absent; setose mound often present on lateral walls of genital chamber within the epandrium, dorsad of epandrial lobe; male cercus usually with ventral projection or lobe (Bickel, 1994). There are no suitable keys to the afrotropical fauna.

### ***Plagiozopelma* Enderlein, 1912 (Figs. 266-269)**

There are 101 world species (inhabiting Old World tropics mainly) including 17 described afrotropical species. This sciapodine genus is close to *Chrysosoma* Guérin-Méneville, differing in following characters: frons highly polished metallic blue-green; male frons bare or with single weak vertical seta only; male scape often swollen and vasselike; fore coxa with either 3 to 7 strong lateral spine-like setae (stronger in females than males), or fore coxa with 3 strong black distolateral setae. Bickel (1994) separated afrotropical species in the *bequaerti* group that has males with thickened and ornamented arista-like stylus (spectacularly modified in some species). A key was provided by Grichanov (1998g).

### ***Sciapus* Zeller, 1842 (Figs. 270-273)**

This genus contains 70 holarctic species including 55 from the Palaearctic Region, one from the Orient (Taiwan) and one species, *S. endrodyi* Grichanov, described from Ghana (Grichanov, 1997f) and found in Gabon (unpubl.). Vertex often rather shallowly excavated; strong postvertical seta developed at end of postocular row; proclinate vertical setae present in both sexes, often more strongly developed in female; scape usually somewhat prolonged; face and clypeus usually equally broad in both sexes, at least as wide as the width of the antennal bases; arista dorsal, arising from base of postpedicel and not much longer than width of head; male head relatively high, higher than wide. Thorax often heavily grey pruinose; black dots sometime present around origin of setae on the pruinose thorax; acrostichals biserial, 8-10 short pairs present, but sometimes reduced or absent; dorsocentrals strong, 5-7 present, decreasing in size anteriorly, without sexually dimorphic hair-like dorsocentrals in males; lateral scutellar setae usually reduced and hairlike. Hind femur with distinct anterior preapical seta in both sexes (absent in some palearctic species); male legs often variously modified; female fore femur in basal one-third often with group of 3-6 strong ventral setae, each seta arising from a distinct mound-like pedicel; these are also sometimes strongly developed on males. Wing sometimes modified in males, with distorted venation, wing prolonged and narrowed, or distally expanded. Abdomen elongate; abdominal plaques present on terga 2-5, but reduced in males; aedeagus and hypandrium arising from epandrial base and usually arching over the epandrium; hypandrium asymmetrical, with narrow left lateral arm, arising near base; aedeagus with distinct dorsal angle; epandrium usually with strong projection along ventral margin basad of epandrial lobe, and bearing epandrial setae; epandrial lobe often greatly elongated and projecting distad; surstylus often prolonged; male cerci either free and simple or forming unpaired ventral projection ("Organ X" of Becker, 1918) which sometimes is detached from the dorsal cercus (or connected basally within the epandrium), and appears to be derived from the proctiger (Bickel, 1994).

### **Subfamily Sympycninae**

### ***Campsicnemus* Haliday, 1851 (Figs. 274-277)**

The genus numbers about 280 species with an extremely high diversity of endemic species in the Hawaiian Islands and French Polynesia (Evenhuis, 2009). Two species were described from central Africa, one from South Africa, being also recorded from Namibia; *C. magius* (Loew, 1845) was reported on St. Helena (introduced?), as well as (erroneously) two more palearctic species. Tiny to medium-sized flies; face narrow in middle, extending downward; antennal arista-like stylus dorsal; usually 4, rarely 5 dorsocentral bristles; acrostichal setae absent or uniseriate;  $R_{4+5}$  and  $M_{1+2}$  more or less parallel; hind femur with subapical bristle; male legs usually modified and ornamented, rarely simple; female abdomen flattened dorsoventrally. A key was provided by Grichanov (1998h). The genus seems to be rare in African collections, but I saw some undescribed afrotropical species including three endemic species from St. Helena.

### ***Chaetogonopteron* De Meijere, 1914 (Figs. 278-281)**

This genus comprises 77 mainly oriental, but also some palearctic and australasian species. Afrotropical *Ch. nectarophagum* (Curran, 1924) shows some extent of colour variability and appears to be widely distributed in many countries of Africa and on adjacent islands, reaching southern Palearctic and western Orient (Grichanov, 2006b). Three species were recently described in the genus from Seychelles (Meuffels & Grootaert,

2007, 2009). Nevertheless, two of the newly described species were placed in the *Sympycnus* Loew (Grichanov, 2008c) and another one is most probably a synonym of *Ch. nectarophagum*. The species belongs to a rich oriental group of species having two basal segments of male hind tarsus shortened and 2<sup>nd</sup> segment of hind tarsus bearing apicoventral worm-like process (clidium). Thorax and abdomen usually partly or mostly yellow in *Chaetogonopteron* males and females. *Ch. sobrium* (Meunier, 1910) is known from rather recent Zanzibaran copal (Pleistocene/Holocene) (Grichanov, 2008a). It is quite probable that it belongs to *Ch. nectarophagum* or its predecessor.

### ***Lamprochromus* Mik, 1878 (Fig. 282)**

There are 12 holarctic species including 9 from the Palaearctic Region and one afrotropical species, *L. belousovi* (Grichanov, 2008c), from DR Congo. Body small, often yellow-brown to black; antennal arista-like stylus dorsal; mesonotum with two large velvety black (palaearctic species) or mat-brown lateral spots; usually four pairs of dorsocentral bristles, but only 3 strong dorsocentrals in *L. belousovi*; acrostichal setae usually in two regular rows, but few uniseriate acrostichals in *L. belousovi*; hind femur with true subapical bristle; male tarsi unmodified; hypopygium with undivided surstylus. The afrotropical species was included into keys to *Sympycnus* (Grichanov, 2008c) and *Telmaturgus* (Grichanov, 2011c).

### ***Olegonegrobovia* Grichanov, 1995 (Figs. 283-286)**

This genus is endemic of Tropical Africa, with six described species, though some species were probably described from the Orient in the genus *Teuchophorus*. It was synonymised with *Teuchophorus* (Meuffels et Grootaert, 2004), but see Grichanov et Mostovski (2008). *Olegonegrobovia* species differs from other sympycnines in bare propleuron in addition to presence of strong setae at the end of male anal wing lobe in almost all species. Afrotropical species of *Teuchophorus* could be easily distinguished by presence of 2 rather than 1 postverticals, 3 propleural cilia, strong ventral subapical seta on hind tibia, slightly diverging rather than parallel wing veins  $R_{4+5}$  and  $M_{1+2}$ , strongly oblique crossvein *dm-cu* forming acute (ca. 60°) angle with  $CuA_1$  in addition to strongly thickened costal vein IN male. The two genera differ from one another in many male secondary sexual characters, e.g., in *Teuchophorus* fore basitarsus is much shorter than 2-5<sup>th</sup> segments combined; 5, 6 and 7<sup>th</sup> sternites present; 7<sup>th</sup> tergite is symmetrical, positioned basally to epandrium, not fused with 8<sup>th</sup> tergite; 8<sup>th</sup> segment is basodorsal in position; epandrium is small, with mostly middorsal foramen; phallus is simple; dorsal and ventral surstyli are separated from base; while in *Olegonegrobovia* fore basitarsus is longer than 2-5<sup>th</sup> segments combined; 5, 6 and 7<sup>th</sup> sterna are absent or membranous; 7<sup>th</sup> tergum is asymmetrical, positioned right-basolaterally, fused with 8<sup>th</sup> tergum in the middle of epandrium; 8<sup>th</sup> segment left-basolateral in position; epandrium is large, with mostly left basolateral foramen; phallus is trilobate; dorsal and ventral surstyli are fused almost to apex. *Teuchophorus* and *Olegonegrobovia* share such characters as uniseriate acrostichals and 2 pairs of strong intraalar setae (Grichanov, 1995c, 1996e, 2000c). There are no suitable keys to the afrotropical fauna.

### ***Sympycnus* Loew, 1857 (Figs. 287-290)**

Twenty-seven of the 273 described species of *Sympycnus* occur in the Afrotropical Region. Usually small species; antennal scape bare; distal inner margin of pedicel straight; acrostichals distinct, even though sometimes small; usually six, rarely 5 pairs of strong dorsocentral bristles; metepimeron without hairs; mesonotum without black or brown lateral spots; segments of fore tarsus usually simple or shortened, rarely ornamented with

remarkable hairs; two basal segments of hind tarsus not shortened; male hind basitarsus rarely ornamented with remarkable setae or hairs; 2<sup>nd</sup> segment of male hind tarsus never having worm-like process; male 3<sup>rd</sup> segment of the same tarsus shorter than 2<sup>nd</sup>, often bearing one or more modified setae; 4<sup>th</sup> tarsomere usually longer and thinner than 3<sup>rd</sup>, often polished; male surstyli usually projected, usually fused with each other, being also fused at base with epandrium; epandrial seta, if present, never long and pedunculate; female face usually narrow; clypeus rarely bulging (*S. simplicipes* Becker, 1908). A key was provided by Grichanov (2008c). The genus *Sympycnus* was divided into three species groups (Grichanov, 2008c). Afrotropical *Sympycnus* Group II is considered to be part of the nominotypical *Sympycnus pulicarius* lineage (*Sympycnus* sensu stricto). Species Group I is in fact an intermediate group between *Sympycnus* and *Lamprochromus* Mik, but having typical *Sympycnus*-like hypopygium. Afrotropical *Sympycnus* Group III was united with the genus *Telmaturgus* (Grichanov, 2011c).

### ***Syntormon* Loew, 1857 (Figs. 291-294)**

*Syntormon* includes about 100 species, of which 14 occur in the Afrotropical Region. *S. flexibilis* Becker, 1922 is widespread around the Pacific Basin, including oceanic islands, and also St. Helena in the South Atlantic Ocean (West European *S. setosus* Parent, 1938, known by females only, may also belong to this species). Usually small species; scape hairy; postpedicel distinctly elongated, rarely short, with a finger-like apical inner process projected into basal inner concavity; arista-like stylus apical or subapical; male tarsi often modified and/or ornamented. A key was provided by Grichanov (2001).

### ***Telmaturgus* Mik, 1874 (Figs. 295-298)**

This genus comprises eighteen species including eleven afrotropical, four oriental, one palaearctic, one nearctic and one neotropical species. Body small (about 2 mm); occiput convex; male face narrowed gradually downward; female clypeus broad, strongly bulging; antennal scape bare; distal inner margin of pedicel straight; arista-like stylus dorsal, sometimes lanceolate at apex in male, long pubescent in female; notopleural depression without black or brown lateral spots (but present in *T. kovali*); acrostichals distinct, even though sometimes small; usually uniseriate; 5 dorsocentral bristles with 1<sup>st</sup> and/or 2<sup>nd</sup> pairs being greatly reduced to hairs; so, only 3 or 4 pairs of strong dorsocentrals present (but 5 or 6 pairs in Indonesian species known from females); scutellum with 1 pair of strong setae and pair of microscopic lateral hairs; metepimeron without hairs; male fore tarsomeres rarely simple, usually shortened, some of them often flattened or ornamented with processes, spines or remarkable hairs; last four segments of hind tarsi regularly decreasing in length; male hind basitarsus sometimes ornamented with remarkable setae or hairs; epandrial seta on male epandrium undeveloped; phallus usually simple and thin. *Telmaturgus* can be defined by a combination of such synapomorphies as modified male fore tarsomeres and strongly bulging female clypeus in addition to bare antennal scape and regularly decreasing in length last four segments of hind tarsus, but any of the character states may also occur in other Sympycninae. A key was provided by Grichanov (2011c).

### ***Teuchophorus* Loew, 1857 (Figs. 299-302)**

This genus contains 115 mainly oriental species and one species *T. caprivi* described from Namibia (Grichanov, 2000c), but also some nearctic and australasian species. The palaearctic fauna of *Teuchophorus* totals about 20 species. Body small-sized; thoracic pleura dark; frons broad, narrowing towards antennae. In male, eyes often contiguous on face for a short distance; postpedicel more or less triangular; arista-like stylus dorsal; 5-6 pairs of strong dorsocentrals; acrostichals uniseriate or absent (exceptionally irregularly biserial); male legs often modified and (or) adorned; male wing usually with costal callus

(stigma) between tips of  $R_1$  and  $R_{2+3}$ ; crossvein *dm-cu* joining  $CuA_1$  at distinctly oblique angle; apical section of M turned up immediately after *dm-cu*. See also diagnosis of *Olegonegrobovia*.

### **Subfamily Xanthochlorinae**

#### ***Xanthochlorus* Loew, 1857 (Figs. 303-305)**

There are 14 species of *Xanthochlorus* known from the Palearctic Region, one from the Nearctic Region and one, *X. kustovi* Grichanov from Afrotropics (Madagascar; Grichanov, 2010i). The genus can be easily separated from others by the yellow or brownish thorax and abdomen. Body less than 3.5 mm; dorsal postcranium feebly concave; mesonotum with flat mid-posterior slope;  $R_{2+3}$  and  $M_{1+2}$  nearly straight and parallel behind *dm-cu*; hind coxa with 1 outer bristle at basal 1/3; anterior preapical bristles on the mid and hind femora absent; dorsal bristles on the slender fore tibia absent; male abdominal tergum 6 rectangular in lateral view, bearing hairs or bristles; male segment 7 small. Female abdominal segments 6-7 enlarged, visible, and normally sclerotized, wholly covered with hairs (just like tergum 5); hemitergites longer than wide, widely separated, without thick spines.

### **Family Microphoridae**

#### ***Schistostoma* Becker, 1902**

The genus currently includes 21 species distributed in the northern hemisphere mainly (Palearctic – 15; Nearctic – 3; Afrotropical – 3) (Chvála, 1987; Shamshev, 1993, Shamshev & Sinclair, 2006). The species of this genus are quite small, greyish flies occurring in southern areas and inhabiting sandy biotopes. The number of scutellar bristles is a distinct character, which occurs in both sexes and can be utilised for distinguishing *Schistostoma* (1 or 2 pairs) from *Microphor* Macquart (3 or 4 pairs) anywhere in the world. This is quite valuable, considering that the male and female genitalia also appear to be distinct for each genus.

### **Subfamily Parathalassiinae**

#### ***Amphithalassius* Ulrich, 1991**

This genus is endemic of South Africa, with two described species. Postpedicel conical or pear-shaped, tapering apicad; prothoracic precoxal bridge partly developed; acrostichal bristles uniserial at least behind, sometimes reduced; face wide in both sexes, not narrowing in middle; postocular bristles uni- to biserial; female 8<sup>th</sup> tergite not cleft (Ulrich, 1991).

#### ***Plesiothalassius* Ulrich, 1991**

This genus is endemic of South Africa, with three described species. Postpedicel globular or oval, broadly rounded at apex; prothorax without precoxal bridge; acrostichals paired and flanked by accessory bristles; face moderately wide in both sexes, more or less narrowing in middle; postocular bristles multiserial; female 8<sup>th</sup> tergite deeply cleft (Ulrich, 1991).

## Key to afrotropical subfamilies of the epifamily Dolichopodoidae

1. Discal cell present, emitting 3 veins to wing margin, veins  $M_1$  and  $M_2$  arising independently from discal cell; costa running around the wing; body is black or greyish 2
  - Discal cell fused with 2<sup>nd</sup> basal cell;  $M_{1+2}$  usually with a curvation or stub-like  $M_2$  at middle of its distal part (M rarely forking apically into  $M_1$  and true  $M_2$ ); costa ending at  $M_1$ , sometimes at tip of  $R_{2+3}$ ; body generally metallic or yellow, rarely greyish (Dolichopodidae s. s.) .....3
2. Arista-like stylus bisegmented; male eyes contiguous on frons .....Microphoridae (*Schistostoma* Becker)
  - Arista-like stylus one-segmented; male eyes widely separated on frons .Parathalassiinae
3. Vertex strongly excavated on either side of ocellar tubercle, or if weakly excavated, vein M distinctly branched, with  $M_2$  present at least as a fold on membrane (absent in *Mesorhaga*); scutum usually short, about as wide as long; hypopygium exerted; posterior mesonotum not flattened .....4
  - Vertex usually not excavated (excavated in some *Urodolichus*, but these have unbranched M); vein  $M_2$  absent or present only as short stub-vein; hypopygium various .....5
4. Vertical setae absent in both sexes; antennal pedicel forming short thumblike projection on inner side of postpedicel; abdominal segment 1 without tergal window; hypopygium mostly exerted, but with small segment 7; hypandrium strongly reduced .... Neurigoninae in part (*Tenuopus* Curran)
  - Vertical setae strong in at least females, often hairlike in males; antennal pedicel simple; abdominal segment 1 with tergal window anteriorly; hypopygium exerted, and distinctly pedunculate; hypandrium usually well developed and asymmetric (reduced in *Condylostylus*) .....Sciapodinae
5. Scape with setae on dorsal surface (scape microscopically haired in *Katangaia* and *Pseudohercostomus*); male hypopygium usually pedunculate and enlarged, and projecting forward under preabdomen (hypopygium small and encapsulated in *Pseudohercostomus* and *Pseudopelastoneurus*); mid- and hind femora with strong anterior preapical setae; all tibiae with strong setae; posterior mesonotum not flattened .....Dolichopodinae
  - Without the above combination of characters (some species of *Argyra* and *Syntormon* have hairy scape) .....6
6. Posterior mesonotum distinctly flattened and slightly depressed, from one-third to one-half of surface between dorsocentral setae, and distinct from curved anterior mesonotum .....7
  - Posterior mesonotum not flattened, or at most only slightly or apparently flattened immediately anterior of scutellum ..... 12
7. Mid- and/or hind femur with distinct anterior or anterodorsal preapical seta ..... Peloropeodinae
  - Mid- and hind femur bare of major anterior preapical seta .....8
8. Body and legs covered with dense grey tomentum usually obscuring cuticle; mesonotum flattened in posterior quarter only, and flattened area not concave but with weak margin; postpedicel ovate and conical with apical arista-like stylus; palpi often enlarged; found on marine coasts .....Hydrophorinae in part
  - Body tomentum usually not dense, and underlying cuticle visible; mesonotum usually strongly flattened or even slightly concave with distinct margin; other features various 9
9. Wing vein  $M_{1+2}$  distinctly sinuate at middle of distal part, with flexion (*bosse alaire*) in membrane; hind basitarsus usually longer than next segment; arista-like stylus usually dorsal; male genitalic capsule usually globular, on peduncle formed by short segment 7, and sometimes enfolded by preceding abdominal segments; face with dense

- tomentosity ..... Neurigoninae in part (*Neurigona* Rondani)
- Wing vein  $M_{1+2}$  straight or regularly curved, without distinct flexion; hind basitarsus usually much shorter than next segment; arista-like stylus usually apical or rarely subapical; male genitalic capsule ovate to pyriform, on peduncle formed by exserted segment 7, and usually not encapsulated or enfolded by preceding abdominal segments; male abdominal segments 4 and 5 unmodified; face often with metallic cuticle..... 10
  - 10.  $R_{2+3}$  and  $M_{1+2}$  distinctly curved and convergent behind *dm-cu*; dorsal postcranium distinctly concave; body usually dark coloured, rarely mostly orange or yellow-brown; male segment 7 usually well developed ..... Medeterinae
  - $R_{2+3}$  and  $M_{1+2}$  nearly straight and parallel behind *dm-cu* (*Xanthochlorus* Loew) or weakly curved anteriorly and distinctly divergent in distal third of wing (*Shamshevia* Grichanov); dorsal postcranium feebly concave; thorax and/or abdomen clear yellow, with or without dark spots dorsally; male segment 7 small..... 11
  - 11. Antennal scape with long pointed ventral process; pedicel within postpedicel with long concealed process reaching basal 1/3 of postpedicel; postpedicel flat, long, band-like, with pointed apex; arista-like stylus basodorsal, with long segment 1 and short segment 2; wing with  $R_{4+5}$  and  $M_{1+2}$  subparallel in middle part and slightly divergent on apical part of wing; *dm-cu* faint, located at wing base, at level of *bm-cu* ..... Diaphorinae in part (*Shamshevia* Grichanov)
  - Antennal scape simple; pedicel without process; postpedicel about as long as high, with indistinct apex; arista-like stylus apical or subapical, with very short segment 1 and long segment 2;  $R_{4+5}$  and  $M_{1+2}$  subparallel on apical half of wing; *dm-cu* distinct, located at middle of wing ..... Xanthochlorinae (*Xanthochlorus* Loew)
  - 12. Pair of large postvertical setae usually present on dorsal postcranium, out of line with postorbital series; abdomen often dorsoventrally flattened; postorbital setae strong dorsally, but as field of fine, pale hairs across ventral postcranium; crossvein *dm-cu* equal to or longer than distal section of  $CuA_1$ ; male face usually wide; fronto-clypeal suture distinct, at least laterally; clypeus usually produced anteriorly; palpus usually large in both sexes, and covered with short setae; eye pubescent; hypopygium encapsulated at abdominal apex ..... Hydrophorinae in part (also see couplet 7)
  - Postvertical setae, if present, near vertex; abdomen usually ovate, and rarely dorsoventrally flattened; postorbital setae usually as distinct row of setae on lower postcranium, even if pale coloured; crossvein *dm-cu* usually shorter than distal section of  $CuA_1$ ; male face often narrow with fronto-clypeal suture obscured; palpus usually small, although sometimes enlarged in males only; other characters various ..... 13
  - 13. Mid and/or hind femora with distinct anterior preapical seta; antenna usually set high on head, about one-quarter distance from vertex; head usually ovate in anterior view, higher than wide; anal angle often reduced or lost; male tarsomere 5 rarely with enlarged pulvilli, fore tibia often with anterodorsal row of short setae on distal half; lateral seta of hind coxa usually near middle ..... Sympycninae
  - Mid and hind femur without anterior preapical seta, or such apparent preapicals indistinct from background setal field; antenna usually near middle of head, two-fifths to one-half distance from vertex; head spherical in anterior view, about as wide as high; anal angle often well developed (both sexes); male tarsomere 5 sometimes with enlarged pulvilli; foretibia without anterodorsal row of short setae on distal half; lateral seta of hind coxa in basal quarter ..... 14
  - 14. Upper part of proepistemum in front of anterior spiracle with long hairs; postpedicel triangular, and usually much longer than basal width; arista-like stylus strictly apical; male cercus often elongate; veins M and  $R_{4+5}$  often slightly bowed with respect to each other ..... Rhapsiinae (*Rhaphium* Meigen)
  - Upper part of proepistemum in front of anterior spiracle with few fine setae or one strong seta or bare; arista-like stylus at most strictly subapical or inserted in apical



incision; other features various ..... Diaphorinae

### Key to afrotropical genera of Diaphorinae (Figs. 1-47)

1. Posterior mesonotum flattened; body yellow-brown; chaetotaxy light ..... *Shamshevia* Grichanov
- Posterior mesonotum not flattened, or at most only slightly or apparently flattened immediately anterior of scutellum; body usually dark, with dark bristles ..... 2
2. Costa not extending beyond tip of  $R_{4+5}$ ; distal vein M gently sinuate or broken or weakened, with distal section often displaced ..... 3
- Costa extending beyond tip of  $R_{4+5}$ , usually ending at apex of vein M; vein M unbroken, rarely weakened ..... 6
3. Vein  $R_{4+5}$  ending along distal anterior wing margin, well before wing apex; distal parts of  $R_{4+5}$  and  $M_{1+2}$  strongly diverging ..... 4
- Vein  $R_{4+5}$  ending almost at wing apex; distal parts of  $R_{4+5}$  and  $M_{1+2}$  subparallel, slightly diverging or bowed with respect to each other ..... 5
4. Upper part of proepisternum with 2–4 fine setae; acrostichals usually present; male sternite 8 often with strong projecting setae ..... *Asyndetus* Loew
- Upper part of proepisternum usually bare; acrostichals absent or microscopic; male sternite 8 without strong setae ..... *Cryptophleps* Lichtwardt
5. Acrostichals biseriate; male antenna very long (4/5 the body length); male fore and mid tarsi modified; male sternite 8 with 2 strong projecting setae *Aphasmaphleps* Grichanov
- Acrostichals absent; male antenna about as long as head height; male fore and mid tarsi simple; male sternite 8 without strong setae (western Pacific) ... [*Phasmaphleps* Bickel]
6. Occiput concave; antennal postpedicel usually pressed laterally, bladelike to subtriangular, with distinct apex and dorsal to dorsoapical arista-like stylus ..... 7
- Occiput convex or flat; antennal postpedicel usually globular, reniform, conoid or budlike, with indistinct apex, or with slender apical projection, and with subapical or apical, rarely dorsal, arista-like stylus inserted sometimes in apical incision ..... 9
7. Hind coxa with external vertical row of 3-4 setae decreasing in length ventrad; scape with dorsal setae (bare in some holarctic species) ..... *Argyra* Macquart
- Hind coxa with one external seta at basal quarter; scape bare ..... 8
8. Wing vein  $M_{1+2}$  with rather distinct sinuation at 2/5 of distal part; arista-like stylus dorsal; antennae positioned at upper quarter of head; male segment 7 rather long ..... *Urodolichus* Lamb
- Wing vein  $M_{1+2}$  nearly straight; arista-like stylus dorsoapical; antennae positioned at middle of head; male segment 7 short (Azores) ..... [*Falbouria* Dyte]
9. Posterior four femora with anterior subapical seta in both sexes; male frons and face broad ..... 10
- Posterior four femora without distinct anterior subapical seta, at most with stiff hairs; male eyes usually convergent or contiguous above or below antennae ..... 11
10. Antennal pedicel with fingerlike projection overlapping postpedicel; male sternite 8 with strong projecting setae ..... *Dactylonotus* Parent
- Antennal pedicel without fingerlike projection; male sternite 8 without strong setae ..... *Nurteria* Dyte et Smith
11. Acrostichal setae absent; female clypeus with four projecting setae; male segment 7 rather long; postgonite prominent, often with a group of pedunculate setae ..... *Acropsilus* Mik
- Acrostichals present, biseriate; female clypeus without setae; male segment 7 short; postgonite reduced ..... 12
12. Antennae positioned at middle of head; upper part of proepisternum with 2–4 fine

- setae; wing usually broadest at basal quarter, with nearly straight  $R_{4+5}$  and M veins ..... *Diaphorus* Meigen
- Antennae positioned at upper quarter to third of head; upper part of proepisternum usually bare; wing usually broadest at middle, with convex anteriorly  $R_{4+5}$  and M veins . ..... 13
13. Face nearly parallel-sided, subequal in width to frons; male postpedicel budlike, with abruptly drawn-out apex; male sternite 8 with strong projecting setae; hypopygial surstylus and epandrial lobe long and thin; male cercus with long distoventral projection ..... *Trigonocera* Becker
- Male eyes convergent or contiguous below antennae; female face distinctly narrowed downwards; male postpedicel globular, reniform, conoid (*Chrysotus*) or with slender apical projection (*Achradocera*); male sternite 8 with simple hairs, rarely with short thick setae; surstylus and epandrial lobe broad; male cercus without distoventral projection ..... 14
14. Male postpedicel with slender apical projection bearing apical arista-like stylus, and lower postocular surface of male with many flattened pale setae ... *Achradocera* Becker
- Male postpedicel globular, reniform or conoid with subapical arista-like stylus; lower postocular surface with fine unmodified setae ..... *Chrysotus* Meigen

#### Remarks

1. Bickel (1998) considered *Acropsilus* incertae sedis, rejecting its placement in Peloropecodinae and Grichanov (1998) associated the genus with the Diaphorinae. Yang et al. (2006) followed Negrobov (1991), placing it in Peloropecodinae.
2. *Nurteria* with three known species is an unrevised genus originally described in Diaphorinae. Numerous undescribed species of the genus from Southern Africa share some features with Sympycninae (see key to the latter subfamily).

#### Key to afrotropical genera of Dolichopodinae (Figs. 48-105)

1. Antennal scape microscopically haired dorsally ..... 2
- Scape with setae on dorsal surface ..... 3
2. Hind coxa without strong external bristle; frons low, antennae positioned at the top of head; hypopygium large, pedunculate; cercus large, bisegmented ..... *Katangaia* Parent
- Hind coxa with 1 strong external seta; frons high; hypopygium small, encapsulated; cercus small, suboval ..... *Pseudohercostomus* Stackelberg
3. Wing vein  $M_{1+2}$  broken in middle of distal part, joining costal vein just before wing tip, having two stublike veins;  $R_{4+5}$  and distal part of  $M_{1+2}$  ( $M_1$ ) nearly parallel; hind basitarsus with a distinct bristle above, sometimes short ..... *Lichtwardtia* Enderlein
- $M_{1+2}$  not broken as above,  $R_{4+5}$  and distal part of  $M_{1+2}$  usually converging; hind basitarsus with or without dorsal bristles ..... 4
4. Hind basitarsus with 1-3 strong setae above;  $M_{1+2}$  sigmatoid at middle of distal part, sometimes with a stublike vein  $M_2$  ..... *Dolichopus* Latreille
- Hind basitarsus without setae above, rarely with 1-2 feeble dorsal setae, slightly longer than diameter of basitarsus (a few species of *Afrohercostomus* and *Poecilobothrus*);  $M_{1+2}$  various ..... 5
5. Several strong anterodorsal setae in apical half of the hind femur in addition to the true anterior subapical seta; face narrowed under antennae and somewhat widened towards clypeus; wing vein  $M_{1+2}$  usually with gentle curvature before the middle of distal part, then running towards  $R_{4+5}$  and reaching costa far before the tip of wing; stylus short and bare; postpedicel usually short and suboval ..... *Tachytrechus* Haliday

- Hind femur usually with one true anterior subapical seta; face regularly narrowed towards clypeus or parallel-sided; wing vein  $M_{1+2}$  either with curvation beyond the middle of distal part or  $M_{1+2}$  reaching costa near the tip of wing; stylus often pubescent; postpedicel usually subtriangular, asymmetric ..... 6
- 6. Wing vein  $M_{1+2}$  almost straight or slightly and regularly convex anteriorly;  $M_{1+2}$  and  $R_{4+5}$  subparallel or slightly convergent ..... 7
- Wing vein  $M_{1+2}$  distinctly bent in distal part with strongly convergent  $R_{4+5}$  and  $M_{1+2}$ ; or  $M_{1+2}$  sinuate, with flexion at basal third or at middle of distal part and sometimes with subapical flexion, and distal parts of  $M_{1+2}$  and  $R_{4+5}$  usually distinctly convergent.....11
- 7. Thorax with distinct dark spot above notopleuron; some segments of male tarsi often remarkably coloured and modified; hypandrium simple; male cercus small, simple, with a few distinct strong distal setae; postgonite narrow .....8
- Thorax lacking distinct dark spot above notopleuron; male tarsi usually not remarkably coloured or modified; hypandrium often lobate; cerci and postgonite various.....9
- 8. Pleura with cluster of fine hairs in front of posterior spiracle; hind femur with anterior preapical seta positioned far from apex, i.e. at  $2/3$  to  $3/5$  length from base; 5 dorsocentrals; arista-like stylus with long hairs; wing brown, usually with pale transverse stripe just beyond crossvein *m-cu*; notum with dark medial longitudinal stripe and usually a dark spot in front of scutellum; lower margin of clypeus subtriangular; male mid tarsus with 1<sup>st</sup>-4<sup>th</sup> segments often clear white; male hind tarsus simple; male abdominal spiracles 7 not enlarged; hypandrium mainly free, fused to epandrium basally near basiventral epandrial lobe..... *Afropelastoneurus* Grichanov
- Pleura bare in front of posterior spiracle; hind femur with anterior seta positioned at apex; 6 dorsocentrals; stylus shortly pubescent; wing evenly greyish, almost hyaline; upper notum evenly coloured; 1<sup>st</sup>-4<sup>th</sup> segments of male mid tarsus not remarkably coloured; three apical segments of male hind tarsus usually flattened and slightly widened; 1, 2 or 3 apical segments of the same tarsus usually silvery pilose on one side; male abdominal spiracles 7 enlarged; hypandrium short conical, fused to epandrium laterally ..... *Afrohercostomus* Grichanov
- 9. Mid tibia with at least one strong ventral seta; scape with pointed apicoventral process; male postpedicel subtriangular, with middorsal arista-like stylus ..... *Hercostomus* Loew (part)
- Mid tibia with at most one row of few weak ventral setae; scape without pointed apicoventral process; male postpedicel securiform, with basodorsal arista-like stylus 10
- 10. Legs mostly yellow with hind femur blackish or brown in at least apical third; male wing simple at apex; lower postocular setae black or white; hypopygium pedunculate, directed anteriorly, with elongate epandrium; epandrium with symmetrical lobes; epandrial lobe narrow, weakly to moderately projected distad, with 1-2 long ventral setae; male cercus usually narrow, often ornamented with processes or bunches of long cilia; surstylus often fused to epandrium ..... *Neohercostomus* Grichanov (s.s.)
- Legs mostly yellow with hind femur entirely yellow or darkened at apex; lower postocular setae black; male wing modified at apex, with blackish or brownish spot or with white margin at apex of  $M_{1+2}$ ; hypopygium sessile, directed ventrally, with rounded epandrium; epandrium with asymmetrical lobes; left epandrial lobe strongly expanded distoventrally, without long setae; male cercus small, suboval, without processes or bunches of long cilia; surstylus not fused to epandrium ..... *Neohercostomus* (*Subhercostomus*) Grichanov
- 11. Distal segment of antennal stylus (arista) plumose, dorsal and ventral hairs longer than lateral hairs and usually widely spaced; wing vein  $M_{1+2}$  beyond crossvein *m-cu* usually with strong anterior bend and distinctly convergent with  $R_{4+5}$ ; clypeus usually strongly bulging and subequal in height to face (often taller than face in females); proboscis

- large; 5 dorsocentral setae; hind coxa usually with lateral seta near apex; apicoventral epandrial lobe absent or weakly developed to well-developed; proctiger brushes usually present (New World) ..... [*Pelastoneurus vagans* lineage]
- Antennal stylus bare to strongly pubescent, not plumose (i.e. with dorsal and ventral hairs longer than lateral hairs); proctiger brushes rarely well-developed (e.g., *Paraclius arcuatus*); clypeus rarely strongly bulging; other features various ..... 12
12. Body non-metallic; head grey, with whitish pollen, wider than high, with frons and face broad in both sexes; frons distinctly wider than high; thorax pale-grey to dark grey or blackish with whitish-grey pollen; antennal stylus dorsal to apical, bare; 6 dorsocentrals, fifth pair usually strongly offset medially; vein  $M_{1+2}$  beyond crossvein *m-cu* usually with strong anterior bend and strongly convergent with  $R_{4+5}$ ; *m-cu* located at about half wing length; abdomen yellowish brown; hind basitarsus of male with elongate comma-shaped posterobasal projection; male genitalia with proctiger brushes absent; female oviscapt usually with a pair of rod-like strong ventral lobes, exposed, if projections reduced, then setae of body and legs pale..... *Argyrochlamys* Lamb
- Body non-metallic; head higher than wide; frons black, grey or brownish pollinose, high, as high as face; male face very narrow, female face slightly wider, both almost parallel sided; thorax mainly yellow-orange with only black longitudinal stripe on mesonotum to mainly black with only metepinerons yellow-brown, weakly to densely pollinose; antennal stylus basodorsal, bare; 5 dorsocentrals in regular rows; vein  $M_{1+2}$  is distinctly bent in distal part, reaching costa near the tip of wing which has nearly parallel  $R_{4+5}$  and  $M_{1+2}$ ; *m-cu* located at about basal third of wing, very short; abdomen mostly orange-yellow with black dorsolateral spots; hind basitarsus of male without comma-shaped posterobasal projection; male genitalia with proctiger brushes absent; female oviscapt hidden, simple ..... *Pseudargyrochlamys* Grichanov
  - Body usually metallic, dark; frons distinctly wider than high; 5–6 dorsocentrals, penultimate posterior pair usually in line or weakly offset medially; venation variable, but *m-cu* located at about half wing length; hind basitarsus of male without comma-shaped posterobasal projection; female oviscapt usually hidden, simple ..... 13
13. Face of male very narrow and strongly converging below; face and clypeus broad in female with sides subparallel or convergent below; antennal stylus dorsal, near base, distal segment strongly pubescent; 5 dorsocentrals; section of  $M_{1+2}$  beyond crossvein *m-cu* with strong, arcuate anterior bend beyond middle, strongly convergent with  $R_{4+5}$ ; hind femur wide and flat with anterior preapical near apex; hypopygium with elongate anterior apicoventral epandrial seta and distinctive elongate ventral surstylus; apicoventral and basoventral epandrial lobes not developed; proctiger brush sometimes well-developed; male cercus lacking basolateral tail (New World) ..... [*Paraclius arcuatus* lineage]
- Face of male moderately narrow, usually slightly converging at suture; usually 6 dorsocentrals; vein  $M_{1+2}$  variously curved in apical part towards anterior wing margin, rarely with strong arcuate anterior bend; hind femur various; epandrium with developed apicoventral epandrial lobe bearing apical setae (except *Hercostomus*); proctiger brush reduced; male cercus with more or less distinct basolateral tail ..... 14
14. Wing vein  $M_{1+2}$  weakly sinuate, with flexion at middle of distal part, and sometimes strongly sinuate in males; male antennal pedicel greatly reduced; hind femur with anterior seta positioned at apex, usually not flattened or slightly flattened laterally; epandrial lobe well developed; hypandrium usually free, basoventral, simple or complex..... *Sybistroma* Meigen
- Wing vein  $M_{1+2}$  weakly sinuate, with flexion at basal third or at middle of distal part and sometimes with subapical flexion; antennal pedicel normal; hind femur with anterior seta positioned at apex, usually not or slightly flattened laterally; epandrial lobe either

- reduced to 1-2 setae (*Hercostomus*) or well developed (*Poecilobothrus*); hypandrium either simple, fused to epandrium laterally to middle (*Poecilobothrus*), or basiventral epandrial lobes and hypandrium forming a complex of entangled asymmetrical lobes (*Hercostomus*)..... 15
- $M_{1+2}$  distinctly bent in distal part with strongly convergent  $R_{4+5}$  and  $M_{1+2}$ , or  $M_{1+2}$  strongly sinuate, usually distinctly convergent with  $R_{4+5}$ ; antennal pedicel normal; hind femur with anterior preapical seta positioned usually far from apex, i.e. at 2/3 to 3/5 length from base; hind femur often wide and flat; epandrial lobe well developed, often finger-like; hypandrium usually simple, free, basoventral..... 16
  - 15. Thorax with distinct dark spot above notopleuron; wing vein  $M_{1+2}$  irregularly sinuate, often with subapical flexion; wing distinctly darkened in anterior half along major veins; one strong posterior to posteroventral preapical seta on mid femur; hypandrium short conical, fused to epandrium laterally; male cercus dark; female hemitergite 9+10 with 5 thick setae (western Palaearctic)..... [*Poecilobothrus* Mik]
  - Thorax lacking distinct dark spot above notopleuron; wing vein  $M_{1+2}$  regularly sinuate, though sometimes weakly; wing rarely darkened in anterior half; mid femur with 1 strong posterior preapical about even with anterior preapical; hypandrium forming a complex of entangled asymmetrical lobes; male cercus light or dark; female hemitergite 9+10 with 4 thick setae..... *Hercostomus* Loew (part)
  - 16. Antennal stylus long-pubescent, with hairs at least 1.5-2 times longer than basal diameter of stylus; hind tibia usually with strong ventral setae, if hind tibia with fine setae, then distoventral epandrial lobe stick-shaped; vein  $M_{1+2}$  various, often gently curved or sinuate; at least some species (*confusibilis* group) bearing pleural cluster of fine hairs in front of posterior spiracle ..... *Apelastoneurus* Grichanov
  - Antennal stylus short-pubescent, with hairs shorter than basal diameter of stylus; hind tibia without strong ventral setae, usually with a row of very fine short setae; vein  $M_{1+2}$  convex posteriad, having gentle curvation towards  $R_{4+5}$  at middle of distal part (*Pseudoparaclius*) or  $M_{1+2}$  with right-angular curvation towards  $R_{4+5}$  at 2/3 of distal part, forming deep anterior arc in distal third (*Afroparaclius*); distoventral epandrial lobe never stick-shaped ..... 17
  - 17. Wing vein  $M_{1+2}$  convex posteriad, having gentle curvation towards  $R_{4+5}$  at middle of distal part; stylus positioned behind middle of dorsal side of postpedicel, usually at distal 2/3 or 3/4; male fore or mid legs often ornamented; epandrium large, trapezoidal, longer than high, with shorter ventral side (lateral view); hypandrium thick at base, usually with 2-3 relatively broad lobes; aedeagus short, concealed; distoventral epandrial lobe greatly expanded distally, often having 2 long modified setae; postgonite long, narrow; surstylus with long thin lobes; cercus well developed, often with inner lobe or fold bearing brush of hairs ..... *Pseudoparaclius* Grichanov
  - Wing vein  $M_{1+2}$  with right-angular curvation towards  $R_{4+5}$  at 2/3 of distal part, forming deep anterior arc in distal third; stylus middorsal; male legs simple; epandrium large, suboval, nearly twice longer than high; hypandrium and aedeagus thin along their whole length and simple; distoventral epandrial lobe very small, immediately following epandrial seta; postgonite and surstylus relatively short; surstylus with dorsal lobe distinctly broader than ventral lobe; cercus small, simple ..... *Afroparaclius* Grichanov

## Remarks

1. Brooks (2005) considered *Katangaia* and *Pseudohercostomus* incertae sedis, rejecting its placement in Dolichopodinae. Yang et al. (2006) followed Grichanov (2004), placing them in Dolichopodinae.
2. *Pelastoneurus vagans* and *Paraclius arcuatus* lineages are defined after Brooks (2005).

## Key to afrotropical genera of Hydrophorinae (Figs. 106-141)

1. Postpedicel usually globular at base, elongated, with drawn-out or conical apex, with apical, rarely subapical arista-like stylus; vertical (fronto-orbital) setae present; posterior mesonotum usually flattened in posterior quarter, but flattened area with weak margin; palpi often enlarged.....2
- Postpedicel usually short, not much longer than high, laterally flattened, with rounded apex; arista-like stylus usually dorsal, rarely subapical on short postpedicel; verticals often short or absent; posterior mesonotum usually not flattened; palpi various.....6
2. Proboscis with generally protruding hypopharynx; palpus large and triangular; antennal postpedicel bulbous at base and abruptly narrowed distally; arista-like stylus apical with long recurved, generally protruding hypopharynx; palpus large and triangular; antennal stylus either apical or middorsal; wing crossvein *m-cu* located far behind level of  $R_1$ ; prescutellar depression undeveloped.....3
- Proboscis normal in lateral view, without long protruding hypopharynx; palpus small and ovate; stylus dorsoapical or strictly subapical .....4
3. Arista-like stylus apical; fore tibia at apex with distinct erect spinose seta; male hind basitarsus simple, without strong seta.....*Aphrosylus* Haliday
- Arista-like stylus dorsal; fore tibia without spinose seta at apex; male hind basitarsus curved, with strong seta (Canary Islands) .....[*Teneriffa* Becker]
4. Wing crossvein *m-cu* located just behind level of  $R_1$ ; antennal postpedicel bisegmented .  
.....*Epithalassius* Mik
- Wing crossvein *m-cu* located far behind level of  $R_1$ ; antennal postpedicel non-divided..5
5. Postpedicel trapezoidal, with subapical stylus located in dorso-apical excavation; 6<sup>th</sup> and 7<sup>th</sup> male terga well developed .....*Cemocarus* Meuffels & Grootaert
- Postpedicel rounded, without dorso-apical excavation, with apical stylus; 7<sup>th</sup> male tergum greatly reduced .....*Cymatopus* Kertész
- Postpedicel bulbous at base and abruptly narrowed distally, with ventral excavation, with strictly subapical stylus; 7<sup>th</sup> male tergum greatly reduced .....*Machaerium* Haliday
6. Antennal pedicel forming a more or less distinct projection into postpedicel; distal part of  $CuA_1$  longer than *m-cu*; acrostichals absent ..... *Thinophilus* Wahlberg
- Antennal pedicel simple, without projection; distal part of  $CuA_1$  usually shorter than *m-cu*; acrostichals absent or present.....7
7. All tibiae without apical setae;  $R_{2+3}$ ,  $R_{4+5}$ , and  $M_{1+2}$  straight and parallel; 4 pairs of dorsocentrals; wing hyaline; male cercus short; acrostichals absent (Egypt; Oriental Region) .....[*Paralleloneurum* Becker]
- Tibiae usually with strong setae;  $M_{1+2}$  usually curved; either one pair or at least 5 pairs of dorsocentrals; acrostichals usually present .....8
8. Mesonotum with small setae; no more than one pair of dorsocentrals; acrostichals in two rows; arista-like stylus subapica (western Mediterranean)[*Anahydrophorus* Becker]
- Mesonotum with several strong dorsocentrals; acrostichals in one row, rarely absent or biseriata; arista-like stylus usually dorsal.....9
9. Anepimeron with seta or tuft of fine hairs anteriad of posterior spiracle .....  
.....*Hydatostega* Philippi
- Anepimeron bare anteriad of posterior spiracle.....10
10. Fore femora thickened, ventrally with strong bristles and spines; postpedicel with apico-ventral incision .....*Hydrophorus* Fallen
- Fore femora not thickened, without strong ventral bristles or spines; postpedicel without incision .....11
11. Proepimeron rounded at base of fore coxa; scutellum with 4 setae; hind femur flat; wing veins unmodified except  $M_{1+2}$  with two right angle bends in males and fair sinuation in females .....*Orthoceratium* Schrank

- Proepimeron with ventral digitiform projection behind base of fore coxa; scutellum usually with 6 setae; hind femur cylindric; males and often females with wing veins variously modified, but  $M_{1+2}$  without double right angle bend ..... *Liancalus* Loew

## Key to afrotropical genera of Medeterinae (Figs. 142-191)

1.  $R_{4+5}$  and  $M_{1+2}$  subapically bowed (except *Systemomorphus*); distal sector of  $R_{4+5}$  and  $M_{1+2}$  with flexion; posterior pair of acrostichals distinctly larger than preceding pair and offset laterally; usually 6 strong dorsocentrals; antenna sexually dimorphic (females of *Euxiphocerus* are unknown); male postpedicel elongate; male 7<sup>th</sup> abdominal segment with tergite and sternite distinct; female terga 9+10 divided medially into 2 hemitergites, each bearing a row of 4 spines (*Systemini*) ..... 2
  - $R_{4+5}$  and  $M_{1+2}$  subparallel or convergent with M usually arched anteriorly;  $M_{1+2}$  without flexion; acrostichals absent or aligned in two rows; usually 5 or fewer dorsocentrals; antenna usually similar in male and female; male postpedicel usually short, rounded or subtriangular; male 7<sup>th</sup> abdominal segment with tergite and sternite fused or sternite greatly reduced; female hemitergites usually without spines ..... 5
2. Male abdominal sterna 4-6 well sclerotized; segment 6 mostly concealed, glabrous; tergite 7 forming very narrow ring within segment 6; hypopygium sessile; male fore tarsus with 4-5<sup>th</sup> segments and claws distinctly modified; antennal pedicel very short, with two apico-dorsal setae long in both sexes, 2/3 length of scape; male postpedicel elongate-triangular, stylus longer than postpedicel ..... *Systemoneurus*
  - All abdominal sterna membranous or only weakly sclerotized in male; hypopygium either sessile or pedunculate; male fore tarsus always simple; antennal pedicel with ring of more or less equal and short apical setae; male postpedicel never regularly triangular; stylus usually shorter than postpedicel ..... 3
3. Body mainly black; antennal postpedicel elongate-ovoid, with rounded apex, flattened laterally, at most 2 times as long as its basal height in male, as long as high in female; stylus subapical-dorsolateral; hypopygium pedunculate; hypandrium bilobate; aedeagus trilobate; epandrium deeply emarginated laterally at middle, with surstylus fused with cercus, forming left and right semi-cylinders; male cercus with small distal setose lobe; male cercus bearing thin long ventral process ..... *Systemomorphus*
  - Body usually metallic green or with distinct green or bluish reflection; postpedicel long, at least 2.5 times longer than high at base, swollen at base, tapering, with apical or strictly dorsoapical stylus, ovoid in female; hypopygium either sessile or pedunculate; hypandrium and aedeagus simple; surstylus not fused with cercus; male cercus without apicoventral process ..... 4
4. Postocular bristles flattened; male antennal pedicel greatly reduced; male postpedicel 5-6 times longer than high at base; male 7<sup>th</sup> abdominal segment short; hypopygium sessile, with large epandrial lobe, with broad and deeply divided dorsal and ventral arms of surstylus ..... *Euxiphocerus* Parent, 1935
  - Postocular bristles simple; male antennal pedicel not reduced; male postpedicel at most 3-4 times longer than high at base; male 7<sup>th</sup> abdominal segment long, forming peduncle for hypopygium; epandrial lobe usually reduced to 2 pedunculate setae; dorsal and ventral arms of surstylus usually fused, with emargination at apex, or only ventral arm broad ..... *Systemus* Loew, 1857
5.  $R_{4+5}$  and  $M_{1+2}$  behind mid wing parallel to apex; acrostichal setae present; hind coxa with 2 lateral setae; body coloration usually bright metallic green (*Thrypticini*) ..... 6
  - $R_{4+5}$  and  $M_{1+2}$  convergent, at most subparallel at apex; if those veins parallel behind mid wing to apex, then acrostichal setae absent or hind coxa with one lateral seta; body coloration usually dark (*Medeterini*) ..... 7

6. Female oviscapt blade-like, sclerotized, narrow in dorsal view; male surstylus strongly deflexed dorsad, usually lying conformably with similarly deflexed, oblong-shaped cerci ..... *Thrypticus* Gerstäcker
- ..... Female oviscapt soft, male surstylus and cercus usually not deflexed dorsad ..... *Corindia* Bickel
7. Acrostichal setae absent ..... 8
- Acrostichal setae present, usually biseriate ..... 10
8. Arista-like stylus dorsal; male 1<sup>st</sup> tergite with a pair of dorsal bulbs; female with several strong bristles at the same place; 5 dorsocentral setae of approximately equal length ..... *Craterophorus* Lamb
- Arista-like stylus apical or apicolateral; male and female 1<sup>st</sup> tergite unmodified; usually 4 dorsocentral setae of approximately equal length ..... 9
9. Arista-like stylus apicolateral; distal sectors of  $R_{4+5}$  and  $M_{1+2}$  straight and parallel; male 7<sup>th</sup> abdominal segment forming pedicel; hypopygium symmetrical; foramen basolateral; hypandrial lobes present; aedeagus without lateral lobes ..... *Paramedetera* Grootaert et Meuffels
- Arista-like stylus apical; distal sectors of  $R_{4+5}$  and  $M_{1+2}$  parallel, weakly arched anteriorly; 7<sup>th</sup> abdominal segment semicircular, narrow; hypopygium sessile, asymmetrical; foramen dorsolateral; hypandrial lobes absent; aedeagus with large lateral lobes ..... *Grootaertia* Grichanov
10. Wing vein  $M_{1+2}$  bowed posteriorly beyond *dm-cu*, slightly flexed just before apex; if vein M straight, then male cercus secondarily segmented, with distal section of cercus articulated with basal section ..... 11
- Vein  $M_{1+2}$  bowed anteriorly beyond *dm-cu*, rarely straight; cercus never bisegmented 12
11. Facial suture distinct at eye margins only; male with ventral spine-like setae on fore and mid femora; male postabdomen symmetrical and segments 7 and 8 reduced; hypopygium sessile; foramen positioned strictly basally; male cercus simple ..... *Nikitella* Grichanov
- Facial suture distinctly separating clypeus; males with or without distinctive ventral setae on mid and hind femora; abdominal segments 7 and 8 developed, asymmetrical; epandrial foramen positioned left laterally; cercus bisegmented . *Medeterella* Grichanov
12. Fore coxa with long anteroapical spine or hook of cilia, shorter in females; at least fore and hind coxae yellow; male fore tarsomeres 1 and 3 usually modified, with remarkable apical setae or processes, rarely simple, but with slightly thickened tarsomeres 1-4; body usually shining, weakly pollinose;  $R_{4+5}$  and  $M_{1+2}$  weakly convergent, almost subparallel ..... *Dolichophorus* Lichtwardt
- Fore coxa with short anteroapical setae not forming spine or hook; all coxae dark or only fore coxa yellow, rarely fore and hind coxae yellow; male fore tarsus differently modified or simple; body rarely shining ..... 13
13.  $R_{4+5}$  and  $M_{1+2}$  strongly convergent; *dm-cu* distinctly shorter than or (rarely) equal to maximum distance between  $R_{4+5}$  and  $M_{1+2}$ ; apical part of  $CuA_1$  usually less than 2.5 times longer than *dm-cu*; male anterior tarsus simple, rarely with elongate hairs; if  $R_{4+5}$  and  $M_{1+2}$  weakly convergent, then *dm-cu* distinctly shorter than maximum distance between  $R_{4+5}$  and  $M_{1+2}$  ..... *Medetera* Fischer von Waldheim
- $R_{4+5}$  and  $M_{1+2}$  weakly convergent, almost subparallel; *dm-cu* about as long as or longer than maximum distance between  $R_{4+5}$  and  $M_{1+2}$ ; apical part of  $CuA_1$  usually 2-4 times longer than *dm-cu*; male tarsomeres 2 and 3 of fore leg thickened or enlarged and flattened (*Saccopheronta*) or simple ..... 14
14. Face and clypeus usually with pruinosity; male tarsomeres 2 and 3 of fore leg thickened or enlarged and flattened; epandrium cylindrical, elongate, more than twice as long as



- high; hypopygial foramen always dorsolateral in position with tendency to becoming median ..... *Saccopheronta* Becker
- Face and clypeus shining blue-violet, with no pruinosity; male fore leg normal; epandrium dorsoventrally flattened; hypopygial foramen usually basal in position .....  
..... *Demetera* Grichanov

### Key to afrotropical genera of Peloropeodinae (Figs. 196-218)

1. Acrostichal setae absent ..... 2
  - Acrostichals distinct, even though sometimes small ..... 3
2. Arista-like stylus dorsal; scutellum with only one pair of setae; hind femur with subapical bristle; male hypopygium sessile ..... *Micromorphus* Mik
  - Arista-like stylus apical or subapical, inserted in notch of postpedicel; scutellum with additional pair of hair-like setae; hind femur without subapical bristle; male hypopygium pedunculate ..... *Acropsilus* Mik
3. Crossvein *dm-cu* very short, at least 5 times shorter than apical part of *CuA<sub>1</sub>*, located at basal 1/3 of wing length; male face broad, slightly narrowed downward; face under antennae twice as wide as height of postpedicel ..... *Meuffelsia* Grichanov
  - Crossvein *dm-cu* at most 2–3 times shorter than apical part of *CuA<sub>1</sub>*; male face distinctly or strongly narrowed downward ..... 4
4. Abdomen longer than thorax; male with symmetrical claws on fore tarsus; male mid coxa without apical spine of glued cilia; hypopygium pedunculate .....  
..... *Griphophanes* Grootaert & Meuffels
  - Abdomen as long as thorax; hypopygium sessile; other features various ..... 5
5. Arista-like stylus dorsal; male with asymmetrical claws on fore tarsus; male mid coxa usually with apical spine of glued cilia ..... *Peloropeodes* Wheeler
  - Arista-like stylus apical or subapical, inserted in notch of postpedicel; male with symmetrical claws on fore tarsus; male mid coxa without apical spine of glued cilia .....  
..... *Nepalomyia* Hollis

### Key to afrotropical genera of Sciapodinae (Figs. 223-273)

1. Mid and/or hind femora with distinct anterior preapical setae (absent in some palaearctic *Sciapus* species) ..... 2
  - Femora without strong anterior preapical setae ..... 4
2. Both mid and hind femora with anterior preapical setae; tarsi simple; propleuron with more or less strong ventral setae ..... *Bickelia* Grichanov
  - Hind femur only with anterior preapical seta; some segments of at least fore tarsus often modified; propleuron without strong ventral setae ..... 3
3. Each male cercus forming at least one ventral projection with various ornamentations; basoventral projections always slender, paired and free ..... *Mascaromyia* Bickel (part)
  - Male cerci never forming free paired basoventral projections ..... *Sciapus* Zeller
4. Vein *M<sub>2</sub>* absent, without fold or indication on membrane; dorsocentral bristles strong in both sexes; arista-like stylus usually dorsal; strong vertical seta present in both sexes; clypeus adjacent to margin of eyes ..... *Mesorhaga* Schiner
  - Vein *M<sub>2</sub>* present, even if as fold or indication on membrane; other features various .... 5
5. Both pairs of scutellar setae long; wing often with dark brown band; arista dorsal or dorsoapical; pedicel usually with long dorsal and ventral setae ..... 6
  - Scutellum usually with one pair of strong setae, lateral setae short, hairlike or absent; other features various ..... 9

6. Male hind tibia anteriorly in basal half with distinct callus or areole; hypandrium and aedeagus long and thick; surstylus and/or epandrial lobe well developed.....*Parentia* Hardy
  - Male hind tibia without distinct callus or areole; hypandrium, aedeagus, surstylus and epandrial lobe greatly reduced (*Condylostylus* Bigot) .....7
7. Frons with a strong front vertical bristle arising from hairy mound; fore tibia with 1–2 long apicoventral setae ..... *Condylostylus paricoxa* species group
  - Frons with a strong front vertical bristle only, with at most one fine hair on small mound; fore tibia without long apicoventral seta.....8
8. Male wing venation abnormal:  $M_{1+2}$  (fork-handle) strongly curved towards posterior wing margin,  $M_1$  continued nearly in the same line as  $M_{1+2}$ ..... *Condylostylus pateraeformis* species group
  - Male wing with normal female-type venation .... *Condylostylus burgeoni* species group
9. Arista usually apical on triangular first flagellomere; *m-cu* often sinuous; arista usually long, and more than half body length in females; male arista sometimes with apical flag; fore tibia often with long setae ..... 10
  - Arista usually distinctly dorsal on subrectangular postpedicel and rarely longer than head width, or if apical or dorsoapical, then always with following characters: male arista rarely with apical flag, tibial chaetotaxy often weak, especially on males; *m-cu* usually straight ..... 16
10. Vertical setae or hairs absent in both sexes, *m-cu* straight or slightly convex, pleura usually yellow, postpedicel very long, frons and face narrow, acrostichal setae weak and short, all tibiae and first tarsomeres with strong bristles in both sexes; cercus simple ..... *Gigantosciapus* Grichanov
  - Strong (at least in female) or hairlike vertical setae present, *m-cu* often sinuous, postpedicel usually short, frons and face usually broad, acrostichal setae often long.....11
11. Crossvein *m-cu* usually straight, 2 or 3 long acrostichal setae present, legs elongate, with a few major setae, male fore tibia sometimes with strong curved posterior subapical seta; cercus simple ..... *Amblypsilopus* Bigot (part)
  - Crossvein *m-cu* usually sinuouse; tibiae often with major setae; cercus usually deeply forked..... 12
12. Frons highly polished metallic blue-green; male frons bare or with single weak vertical seta only; male scape often swollen and vasselike; fore coxa with either 3 to 7 strong lateral spine-like setae (stronger in females than males), or fore coxa with 3 strong black distolateral setae ..... *Plagiozopelma* Enderlein
  - Vertex and frons usually with pruinosity; male frons often with hairs on lateral slope; male scape rarely swollen and vasselike; fore coxa without strong lateral spine-like setae; pedicel often with long ventral and dorsal setae (*Chrysosoma* Guérin-Méneville) ..... 13
13. Male mid basitarsus and tibia without long setae ..... *Chrysosoma* s.s.
  - Males with very long posterior or posterodorsal setae on mid basitarsus and usually on mid tibia..... 14
14. Male and female arista-like stylus strongly flattened and strap-like with hairlike apical part.....*Chrysosoma* (*Kalocheta* Becker)
  - Arista-like stylus simple ..... *Chrysosoma* (*Mesoblepharius* Bigot)
15. Male cercus with distinctive sclerotized basal hook; male fore basitarsus flattened and forming ventral cushion with dense pale pile; lateral scutellar absent..... 16
  - Male cercus without sclerotized basal hook; other features various ..... 17
16. Male with strong vertical seta; femora usually bare; cercus usually with apical brush of long hairs; acrostichals short or absent; alula usually reduced ..... *Bickeliolus* Grichanov
  - Male with group of hairs laterally on frons; femora usually with long black ventral hairs; cercus usually with short or long hairs, but without apical brush; 3 long acrostichal setae; alula well developed ..... *Ethiosciapus* Grichanov

17. Hypopygium globular, with basal foramen; face wide; 3 strong dorsocentral setae; male fore basitarsus slightly broadened, with ventral pile ..... *Dytomyia* Bickel
- Hypopygium various, usually with lateral foramen; face narrow; fore basitarsus usually simple..... 18
18. Male usually with some anterior dorsocentrals weak and hairlike; vertical setae in males usually strongly reduced, or lateral frons with dense hairs; female fore femora rarely with strong basoventral setae; cercus usually simple . *Amblypsilopus* Bigot (part)
- 4 to 5 dorsocentrals, all strong in both sexes; strong vertical setae present either in both sexes or in females only; proclinate vertical setae sometimes absent in males; cercus usually with two strong ventral projections; female fore femora often with stout basoventral setae ..... *Mascaromyia* Bickel (part)

## Remarks

1. Species groups in the genus *Condylostylus* are defined after Grichanov (2010h).
2. Subgenera of *Chrysosoma* are defined after Grichanov (1995b, 1999b).

## Key to afroropical genera of Sympycninae (Figs. 274-302)

1. Antennal pedicel, seen on inside face, forming a more or less long thumb-like projection into postpedicel; scape often with hairs above; arista-like stylus apical or subapical; anepimeron in front of posterior spiracle and metepimeron with fine pale hairs; female face bulging, in lateral view projecting beyond curvature of eye.....  
..... *Syntormon* Loew
- Antennal pedicel simple, vase-like or globular, without thumb-like projection; anepimeron and metepimeron bare (metepimeron in *Campsicnemus*, in front of posterior spiracle, with fine hairs); arista-like stylus often distinctly dorsal; female face usually not bulging, conforming with curvature of eyes.....2
2. Abdomen broad, dorsoventrally flattened, and often short; face of both sexes narrowest near middle, extending downward; metepimeron, in front of posterior spiracle, with fine hairs; fore tibia without anterodorsal row of short setae on distal half; male fore and/or mid leg often strongly modified..... *Campsicnemus* Haliday
- Abdomen usually cylindrical; face of both sexes parallel or gradually narrowed ventrally; metepimeron bare; other features various .....3
3. Acrostichal setae absent; last fore segments of all tarsi regularly decreasing in length ...4
- At least few distinct acrostichals, even though sometimes small.....5
4. Mesonotum often yellow, with two large black or brown lateral spots .....  
..... *Sympycnus* Loew (Group I)
- Mesonotum regularly dark, without black or brown lateral spots *Nurteria* Dyte et Smith
5. Mesonotum with two large mat-brown lateral spots; male tarsi unmodified.....  
..... *Lamprochromus* Mik
- Mesonotum without mat-brown lateral spots; male tarsi often ornamented.....6
6. Three or 4 pairs of strong dorsocentrals; male anterior tarsomeres rarely simple, usually shortened, some of them often flattened or ornamented with processes, spines or remarkable hairs; last four hind tarsomeres regularly decreasing in length; male hind basitarsus often ornamented with remarkable setae or hairs; female clypeus strongly bulging..... *Telmaturgus* Mik
- At least 5 pairs of strong dorsocentrals; fore tarsomeres usually simple or shortened, rarely ornamented with remarkable hairs; last four hind tarsomeres of male usually irregularly decreasing in length; male hind basitarsus rarely ornamented with remarkable setae or hairs .....7

7. Two rather than one postverticals, strong ventral subapical seta on hind tibia, wing veins  $R_{4+5}$  and  $M_{1+2}$  slightly diverging rather than parallel, strongly oblique crossvein  $m-cu$  forming acute (ca.  $60^\circ$ ) angle with  $CuA_1$ ; mid femur with ventral bristles in basal part; male wing costa with long and thick stigma beyond  $R_1$ ; epandrial foramen mostly middorsal.....*Teuchophorus* Loew
- One postvertical seta; wing veins  $R_{4+5}$  and  $M_{1+2}$  parallel; epandrium with mostly left basolateral foramen.....8
8. Five pairs of strong dorsocentrals; two basal hind tarsomeres shortened; male hind tarsomere 2 with apicoventral worm-like process; tarsomere 3 longer than 2; tarsomere 4 shorter than 3; female face narrow .....*Chaetogonopteron* De Meijere
- Usually 6, rarely 5 pairs of strong dorsocentrals; two basal hind tarsomeres not shortened; male hind tarsomere 2 never having worm-like process .....9
9. Proepisternum without setae, with microscopic hairs; male anterior tarsomeres simple; male hind tarsomere 3 shorter than 2, often bearing one or more modified setae; tarsomere 4 usually longer and thinner than 3, often polished; dorsal and ventral surstyli separated.....*Sympycnus* (Group II)
- Proepisternum with seta; male anterior tarsomeres rarely simple, usually shortened; last four hind tarsomeres regularly decreasing in length, simple; strong setae usually present at end of anal wing lobe; dorsal and ventral surstyli fused almost to apex .....*Olegonegrobovia* Grichanov

## Remarks

1. Species groups in the genus *Sympycnus* are defined after Grichanov (2008c).
2. Sympycnine genus *Micropygus* keys also to Peloropecodinae (see key to the latter subfamily).

## Key to afrotropical genera of Parathalassiinae

1. Postpedicel conical or pear-shaped, tapering apicad; prothoracic precoxal bridge partly developed; acrostichal bristles uniserial at least behind, sometimes reduced; face wide in both sexes, not narrowing in middle; postocular bristles uni- to biserial; female 8<sup>th</sup> tergite not cleft .....*Amphithalassius* Ulrich
- Postpedicel globular or oval, broadly rounded at apex; prothorax without precoxal bridge; acrostichals paired and flanked by accessory bristles; face moderately wide in both sexes, more or less narrowing in middle; postocular bristles multiserial; female 8<sup>th</sup> tergite deeply cleft.....*Plesiothalassius* Ulrich

## References

- Bickel, D. J. 1985.** A revision of the Nearctic *Medetera* (Diptera: Dolichopodidae). *United States Department of Agriculture Technical Bulletin*, **1692**: 1–109.
- Bickel, D. J. 1986.** *Thrypticus* and an allied new genus, *Corindia*, from Australia (Diptera: Dolichopodidae). *Records of the Australian Museum*, **38**(3): 135–151.
- Bickel, D. J. 1987.** A Revision of the Oriental and Australasian *Medetera* (Diptera: Dolichopodidae). *Records of the Australian Museum*, **39**: 131–182.
- Bickel, D. J. 1994.** The Australian Sciapodinae (Diptera: Dolichopodidae), with a review of the Oriental and Australasian faunas, and a world conspectus of the subfamily. *Records of the Australian Museum Supplement*, **21**: 1–394.
- Bickel, D. J. 1998.** Australian, Melanesian, and Micronesian *Acropsilus* Mik (Diptera: Dolichopodidae). *Tijdschrift voor Entomologie*, **141**: 1–17.
- Bickel, D. J. 2005.** A new genus, *Phasmaphleps*, and new species of *Cryptophleps* Lichtwardt from the western Pacific, with notes on Australasian Diaphorinae (Diptera: Dolichopodidae). *Fiji Arthropods II. Bishop Museum Occasional Papers*, **84**: 17–34.
- Bickel, D. J. 2008.** The Dolichopodinae (Diptera: Dolichopodidae) of New Caledonia, with descriptions and records from Australia, New Zealand and Melanesia. In: Grandcolas P. (Ed.), *Zoologia Neocaledonica 6. Biodiversity studies in New Caledonia. Zoologia Neocaledonica, Mémoires du Muséum National d'Histoire naturelle*, **197**: 13–48.
- Bickel, D. J. 2009.** Dolichopodidae (long-legged flies). In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds). *Manual of Central American Diptera*, Volume 1, Ottawa: NRC Research Press, Ottawa, Ontario, Canada: 671–694.
- Bickel, D. J. & B. J. Sinclair. 1997.** The Dolichopodidae (Diptera) of the Galápagos Islands, with notes on the New World fauna. *Entomologica Scandinavica*, **28**: 241–270.
- Brooks, S. E. 2005.** Systematics and phylogeny of the Dolichopodinae (Diptera: Dolichopodidae). *Zootaxa*, **857**: 1–158.
- Chvála, M. 1987.** Revision of Palearctic Microphoridae (Diptera) 2: *Schistostoma* Beck. *Acta Entomologica Bohemoslovaca*, **84**: 133–155.
- Dyte, C. E., 1967.** The genus *Liancalus* Loew (Dipt., Dolichopodidae) in the Ethiopian Region. *Proceedings of the Royal Entomological Society of London (B)*, **36**(7-8): 123–127.
- Dyte, C. E. & Smith, K. G. V. 1980.** 33. Family Dolichopodidae. In: Crosskey, R. W. (Ed.) *Catalogue of the Diptera of the Afrotropical Region*. British Museum (Natural History), London: 443–463.
- Eggleton, P., Beccaloni, G. & D. Inward. 2007.** Invited reply: Response to Lo et al. *Biology Letters*, **3**(5): 564–565.
- Evenhuis, N. L. 2009.** Review of *Campsicnemus* (Diptera: Dolichopodidae) of the Marquesas, French Polynesia, with description of four new species groups. *Zootaxa*, **2004**: 25–48.
- Grichanov, I. Ya. 1995a.** The Afrotropical species of the genus *Rhaphium* Meigen (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **6**(1): 19–31.
- Grichanov, I. Ya. 1995b.** Afrotropical species of the subgenus *Kalocheta* Becker (Diptera: Dolichopodidae: Chrysosoma Guérin-Meneville). *International Journal of Dipterological Research*, **6**(4): 365–368.
- Grichanov, I. Ya. 1995c.** *Olegonegrobovia* (Diptera: Dolichopodidae), new genus from Uganda. *International Journal of Dipterological Research*, **6**(2): 125–128.
- Grichanov, I. Ya. 1996a.** *Bickelia* (Diptera: Dolichopodidae), a new genus from Indian Ocean islands. *International Journal of Dipterological Research*, **7**(2): 119–122.
- Grichanov, I. Ya. 1996b.** Afrotropical species of the genus *Ethiosciapus* Bickel (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **7**(3): 223–227.
- Grichanov, I. Ya. 1996c.** Afrotropical species of the genus *Condylostylus* Bigot (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **7**(3): 217–222.
- Grichanov, I. Ya. 1996d.** Eight new species of the genus *Mascaromyia* Bickel (Diptera: Dolichopodidae) from Indian Ocean islands. *International Journal of Dipterological Research*, **7**(2): 109–118.
- Grichanov, I. Ya. 1996e.** *Olegonegrobovia pappi* sp.n. from Tanzania (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **7**(2): 123–124.

- Grichanov, I. Ya. 1996f.** Afrotropical species of the genus *Tenuopus* Curran (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **7**(2): 125–131.
- Grichanov, I. Ya. 1996g.** Four new species of the genus *Amblypsilopus* Bigot (Diptera: Dolichopodidae) from Tropical Africa and Papua New Guinea. *International Journal of Dipterological Research*, **7**(4): 285–294.
- Grichanov, I. Ya. 1997a.** A brief review of the Afrotropical fauna of the subfamily Hydrophorinae (Diptera: Dolichopodidae) with description of *Cemocarus stuckenbergi* sp.n. *International Journal of Dipterological Research*, **8**(3): 149–157.
- Grichanov, I. Ya. 1997b.** Notes on Afrotropical and Palearctic species of the genus *Thinophilus* Wahlberg (Diptera: Dolichopodidae) with descriptions of new species. *International Journal of Dipterological Research*, **8**(3): 135–147.
- Grichanov, I. Ya. 1997c.** Four new species of *Saccophieronta* Becker (Diptera: Dolichopodidae) from Tropical Africa with notes on the world fauna of the genus. *International Journal of Dipterological Research*, **8**(3): 123–134.
- Grichanov, I. Ya. 1997d.** Eight new species of *Medetera* Fischer von Waldheim (Diptera: Dolichopodidae) from Tropical Africa. *International Journal of Dipterological Research*, **8**(4): 173–179.
- Grichanov, I. Ya. 1997e.** *Gigantosciapus* (Diptera: Dolichopodidae), a new genus from Tropical Africa. *International Journal of Dipterological Research*, **8**(1): 79–83.
- Grichanov, I. Ya. 1997f.** A brief review of the Afrotropical fauna of the subfamily Sciapodinae (Diptera: Dolichopodidae) with descriptions of new species. *International Journal of Dipterological Research*, **8**(1): 43–50.
- Grichanov, I. Ya. 1997g.** Five new species of the genus *Chrysosoma* Guérin-Meneville (Diptera: Dolichopodidae) from Tropical Africa. *International Journal of Dipterological Research*, **8**(1): 29–42.
- Grichanov, I. Ya. 1998a.** Two new species of *Argyra* Macquart (Diptera: Dolichopodidae) from Tropical Africa. *International Journal of Dipterological Research*, **9**(3): 179–182.
- Grichanov, I. Ya. 1998b.** A new species of *Dactylonotus* Parent (Diptera: Dolichopodidae) from South Africa. *International Journal of Dipterological Research*, **9**(1): 27–29.
- Grichanov, I. Ya. 1998c.** Two new species of *Urodolichus* Lamb (Diptera: Dolichopodidae) from Madagascar. *International Journal of Dipterological Research*, **9**(1): 23–26.
- Grichanov, I. Ya. 1998d.** Three new Afrotropical species of the Australian genus *Corindia* Bickel (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **9**(3): 191–194.
- Grichanov, I. Ya. 1998e.** Two new species of *Craterophorus* Lamb (Diptera: Dolichopodidae) from Indian Ocean islands. *International Journal of Dipterological Research*, **9**(3): 207–211.
- Grichanov, I. Ya. 1998f.** Afrotropical species of the genus *Acropsilus* Mik (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **9**(3): 183–190.
- Grichanov, I. Ya. 1998g.** New data on Sciapodinae (Diptera: Dolichopodidae) with a revised catalogue and keys to Afrotropical species. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie*, **68**: 79–130.
- Grichanov, I. Ya. 1998h.** Two new species of *Campsicnemus* Haliday (Diptera: Dolichopodidae) from Tropical Africa. *International Journal of Dipterological Research*, **9**(2): 109–113.
- Grichanov, I. Ya. 1998i.** Afrotropical species of the genus *Tachytrechus* Haliday (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **9**(2): 115–122.
- Grichanov, I. Ya. 1998j.** Afrotropical species of the genus *Thrypticus* Gerstaecker (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **9**(3): 213–220.
- Grichanov, I. Ya. 1998k.** Afrotropical species of the genus *Lichtwardtia* Enderlein (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **9**(3): 221–236.
- Grichanov, I. Ya. 1999a.** A brief review of the Afrotropical fauna of the subfamily Medeterinae (Diptera: Dolichopodidae) with descriptions of a new genus and new species. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie*, **69**: 87–112.
- Grichanov, I. Ya. 1999b.** New species and new records of Afrotropical Sciapodinae (Diptera: Dolichopodidae). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie*, **69**: 113–135.
- Grichanov, I. Ya. 1999c.** Afrotropical species of the genus *Hercostomus* Loew (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **10**(1): 7–44.

- Grichanov, I. Ya. 2000a.** Afrotropical Neurigoninae and notes on the diaphorine genus *Dactylonotus* Parent (Diptera: Dolichopodidae). *Belgian Journal of Entomology*, **2**: 257–271.
- Grichanov, I. Ya. 2000b.** New Afrotropical Sciapodinae and Medeterinae with a review of Namibian Dolichopodidae (Diptera). *Studia dipterologica*, **7**(2): 399–435.
- Grichanov, I. Ya. 2000c.** New Afrotropical Sympycninae and redescription of European *Pelorocephalus acuticornis* (Oldenberg) (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **11**(2): 77–102.
- Grichanov, I. Ya. 2001.** Afrotropical *Syntormon* Loew and new synonyms in the genus *Rhaphium* Loew (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **12**(4): 181–194.
- Grichanov, I. Ya. 2003.** New Afrotropical Sciapodinae (Diptera: Dolichopodidae) with some new synonymy. *Russian Entomological Journal*, **12**(3): 329–346.
- Grichanov, I. Ya. 2003–2011.** A check list of species of the family Dolichopodidae (Diptera) of the World arranged by alphabetic list of generic names. Available from <http://grichanov.fortunecity.com/Genera3.htm> (accessed 24 July 2011).
- Grichanov, I. Ya. 2004.** Review of Afrotropical Dolichopodinae (Diptera: Dolichopodidae). St. Petersburg: VIZR RAAS: 1–244.
- Grichanov, I. Ya. 2005.** Systematic notes on Dolichopodidae (Diptera) of Tristan da Cunha. *Zoosystematica Rossica*, **14**(1): 171–172.
- Grichanov, I. Ya. 2006a.** New genera and new combinations for afrotropical Dolichopodinae (Dolichopodidae, Diptera). *International Journal of Dipterological Research*, **17**(1): 23–34.
- Grichanov, I. Ya. 2006b.** Systematic and faunistic notes on Afrotropical *Chaetogonopteron* De Meijere (Diptera: Dolichopodidae: Sympycninae). *Zoosystematica Rossica*, **15**(1): 167–168.
- Grichanov, I. Ya. 2008a.** Systematic notes on Sciapodinae from Baltic amber and on Dolichopodidae from Tanzanian copal (Diptera). *Caucasian Entomological Bulletin*, **4**(1): 137–139.
- Grichanov, I. Ya. 2008b.** Systematics of the genus *Epithalassius* Mik, 1891 (Diptera, Dolichopodidae). *Caucasian Entomological Bulletin*, **4**(1): 131–136.
- Grichanov, I. Ya. 2008c.** Afrotropical *Sympycnus* Loew (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **19**(1): 17–65.
- Grichanov, I. Ya. 2009a.** Review of the genus *Dolichophorus* Lichtwardt, 1902 (Diptera: Dolichopodidae, Medeterinae). *Far Eastern Entomologist*, **201**: 1–16.
- Grichanov, I. Ya. 2009b.** Systematics of the genus *Euxiphocerus* Parent 1935 (Diptera, Dolichopodidae). *Caucasian Entomological Bulletin*, **5**(1): 127–131.
- Grichanov, I. Ya. 2010a.** A checklist of afrotropical genera of the family Dolichopodidae (Diptera). *International Journal of Dipterological Research*, **21**(3): 203–218.
- Grichanov, I. Ya. 2010b.** *Aphasmaphleps*, a new genus of long-legged flies from Senegal, with a key to the genera of Afrotropical Diaphorinae (Diptera: Dolichopodidae). *African Invertebrates* **51**(2): 405–412.
- Grichanov, I. Ya. 2010c.** A new genus of Dolichopodini from Tropical Africa (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **21**(3): 183–194.
- Grichanov, I. Ya. 2010d.** Species of the genus *Argyrochlamys* Lamb, 1922 (Diptera: Dolichopodidae). *Caucasian Entomological Bulletin*, **6**(1): 113–115.
- Grichanov, I. Ya. 2010e.** Two new genera of Systemini from South Africa and Madagascar (Diptera: Dolichopodidae: Medeterinae). *International Journal of Dipterological Research*, **21**(1): 79–90.
- Grichanov, I. Ya. 2010f.** West-Palearctic species of the genus *Neurigona* Rondani (Diptera: Dolichopodidae). *Russian Entomological Journal*, **19**(3): 249–256.
- Grichanov, I. Ya. 2010g.** Discovery of *Griphophanes* Grootaert & Meuffels and *Nepalomyia* Hollis in the Afrotropical Region with a key to Afrotropical genera of Pelorocephalinae (Diptera: Dolichopodidae). *Zootaxa*, **2668**: 1–20.
- Grichanov, I. Ya. 2010h.** A new species of *Condyllostylus* Bigot, 1859 (Diptera: Dolichopodidae) from Tanzania and a new generic synonym. *Far Eastern Entomologist*, **216**: 1–10.
- Grichanov, I. Ya. 2010i.** Discovery of *Xanthochlorus* in the Afrotropical Region with a key to species of the *Xanthochlorus helvinus* species group (Diptera: Dolichopodidae). *International Journal of Dipterological Research*, **21**(3): 219–223.
- Grichanov, I. Ya. 2011a.** A key to the afrotropical genera of the subfamily Dolichopodinae with



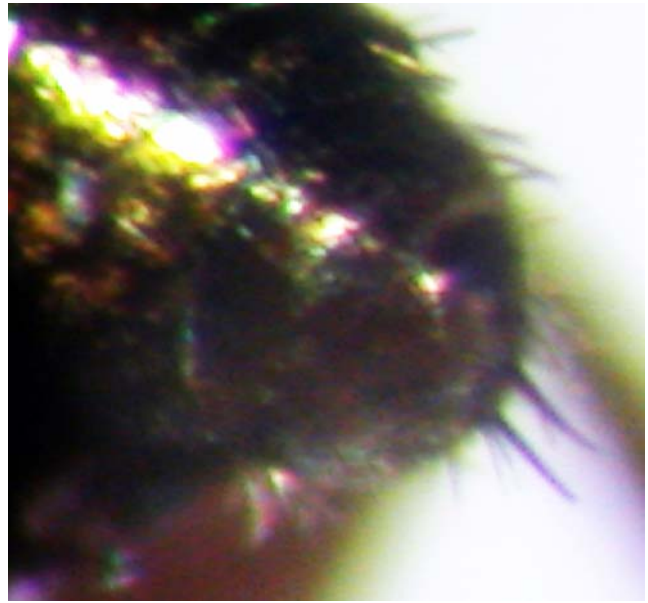
- descriptions of new taxa (Diptera: Dolichopodidae). *Far Eastern Entomologist*, [230]: 1–36.
- Grichanov, I. Ya. 2011b.** Three new genera of Medeterinae (Diptera: Dolichopodidae) from Old World tropics and Australasia. *Far Eastern Entomologist*, 225: 1–16.
- Grichanov, I. Ya. 2011c.** Species of the genus *Telmaturgus* Mik, 1874 (Diptera: Dolichopodidae). *Caucasian Entomological Bulletin*, 7(2).
- Grichanov, I. Ya., Kirk-Spriggs, A. H. & P. Grootaert. 2006.** An annotated checklist of Namibian Dolichopodidae (Diptera) with the description of a new species of *Grootaertia* and a key to species of the genus. *African Invertebrates*, 47: 207–227.
- Grichanov, I. Ya., Kirk-Spriggs, A. H. & P. Grootaert. 2011.** New records of Dolichopodidae from the Democratic Republic of Congo (Diptera: Empidoidea). *CESA News* 64: 12–22, 16 figs.
- Grichanov, I. Ya. & M. B. Mostovski. 2008.** *Meuffelsia*, a new genus of long-legged flies from South Africa, with a key to Afrotropical peloroepodine and allied genera (Diptera: Dolichopodidae). *African Invertebrates*, 49(2): 159–170.
- Grichanov, I. Ya. & M. B. Mostovski. 2009a.** Long-legged flies (Diptera: Dolichopodidae) in the collection of the Natal Museum: A review of C. H. Curran's types, new synonyms, and new combinations. *Zootaxa*, 2194: 37–53.
- Grichanov, I. Ya. & M. B. Mostovski. 2009b.** Discovery of *Systemus* in the Afrotropical Region with a description of a new species (Diptera: Dolichopodidae). *Zoosystematica Rossica*, 18(2): 285–290.
- Grichanov, I. Ya., Negrobov O. P. & O. V. Selivanova. 2011a.** Keys to Palaearctic subfamilies and genera of the family Dolichopodidae (Diptera). *CESA News*, 62: 13–46, 195 figs.
- Grichanov, I. Ya., Selivanova, O. V. & O. P. Negrobov. 2011b.** A brief synopsis of Palaearctic genera of the family Dolichopodidae (Diptera). *Ukrainska entomofaunistyka*, 2(2): 11–40.
- Grootaert, P. & I. Ya. Grichanov. 2008.** A first record of *Cymatopus* (Diptera: Dolichopodidae) from Madagascar with the description of a new species. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie*, 78: 275–278.
- Grootaert, P. & H. J. G. Meuffels. 1997a.** Dolichopodidae (Diptera) from Papua New Guinea XIV. *Paramedetera*, a new genus in the Medeterinae. *Invertebrate Taxonomy*, 11: 309–319.
- Grootaert, P. & H. J. G. Meuffels. 1997b.** *Griphomyia* (Diptera, Dolichopodidae, Peloroepodinae) a new genus from southern Thailand. *Belgian Journal of Zoology*, 127(2), 107–114.
- Lim, G. S., Hwang, W., Kutty, S. N., Meier, R. & P. Grootaert. 2010.** Mitochondrial and nuclear markers support the monophyly of Dolichopodidae and suggest a rapid origin of the subfamilies (Diptera: Empidoidea). *Systematic Entomology*, 35: 59–70.
- Maslova, O. O. & O. P. Negrobov. 2006.** A review of species of the genus *Machaerium* (Dolichopodidae, Diptera). *International Journal of Dipterological Research*, 17(2): 107–111.
- Meuffels, H. J. G. & P. Grootaert. 1984.** Dolichopodidae (Diptera) from Papua New Guinea I: The genus *Cymatopus* Kertész with a discussion on *Abatetia* Miller and *Cemocarus* gen. nov. *Indo-Malayan Zoology*, 1: 141–158.
- Meuffels, H. & P. Grootaert. 2004.** The genus *Teuchophorus* in South-east Asia and New Guinea, description of new species, species groups and their phylogeny (Insecta, Diptera, Dolichopodidae). *Journal of Natural History*, 38: 143–258.
- Meuffels, H. & P. Grootaert. 2007.** New longlegged flies (Diptera, Dolichopodidae) of Seychelles. *Phelsuma*, 15: 28–62.
- Meuffels, H. & P. Grootaert. 2009.** Family Dolichopodidae. In: Gerlach, J. (Ed.). *The Diptera of the Seychelles islands*. Sofia, Bulgaria and Moscow, Russia: Pensoft: 117–143.
- Moulton, J. K. & B. M. Wiegmann. 2007.** The phylogenetic relationships of flies in the superfamily Empidoidea (Insecta: Diptera). *Molecular Phylogenetics and Evolution*, 43: 701–713.
- Naglis, S. M. 1999.** A new species of *Trigonocera* Becker (Diptera: Dolichopodidae) from tropical Africa. *Studia Dipterologica*, 6(2): 333–335.
- Negrobov, O. P. 1977–1979.** Dolichopodidae, Unterfamilie Hydrophorinae, Unterfamilie Raphiinae. In: Lindner, E. (Ed.). *Die Fliegen der Palaearktischen Region*. Stuttgart, IV, 29, 316 (1977), 319 (1978), 321–322 (1979): 354–530.



- Negrobov, O. P. 1991.** Dolichopodidae. In: Sóos, Á. & Papp, L. (Eds.), *Catalogue of Palaearctic Diptera. Volume 7. Dolichopodidae–Platypezidae*. Akadémiai Kiadó, Budapest: 11–139.
- Negrobov, O. P., Grootaert, P. & B. Coulibaly. 1987.** Description d'une espèce nouvelle du genre *Liancalus* Loew, 1857 (Diptera, Dolichopodidae) du Zaïre. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique. Entomologie*, **57**: 157–159.
- Parent, O. 1934.** Additions à la faune éthiopienne (Diptères: Dolichopodidés). *Bulletin de la Société Royale entomologique d'Égypte*, **18**: 112–138.
- Parent, O. 1938.** Diptères Dolichopodidés. In: *Faune de France*, 35. L'Académie des Sciences de Paris, Paris: 1–720.
- Rampini, L. 1982.** Due nuovi *Aphrosylus* della Sierra Leone (Diptera, Dolichopodidae). *Problemi attuali di scienza e di cultura*, N. 255, Sezione: Missioni ed esplorazioni – VIII (Ricerche biologiche in Sierra Leone): 41–46.
- Rampini, L. & L. Munari. 1987.** Due nuovi *Aphrosylus* Walk. afrotropicali (Diptera, Dolichopodidae). *Bollettino del Museo civico di Storia Naturale di Venezia*, 1986, **37**: 99–106.
- Runyon, J. B. & R. L. Hurley. 2003.** Revision of the Nearctic species of *Nepalomyia* Hollis (= *Neurigonella* Robinson) (Diptera: Dolichopodidae: Pelorocephalinae) with a world catalogue. *Annals of the Entomological Society of America*, **96**(4): 403–414.
- Selivanova, O. V., Negrobov, O. P. & D. Yang. 2010.** Redescription of the holotype of *Lichtwardtia formosana* (Diptera: Dolichopodidae), with new data on its synonymy. *Zoosystematica Rossica*, **19**(1): 143–146.
- Shamshev, I. V. 1993.** A review of species of the genus *Schistostoma* Becker (Diptera, Microphoridae) of the Ukraine, Transcaucasia and Central Asia. *Entomologicheskoe Obozrenie*, **72**(3): 684–697 [in Russian; English translation: *Entomological Review*, 1994, **73**(4): 73–87].
- Shamshev, I. V. & B. J. Sinclair. 2006.** The genus *Schistostoma* Becker from southern Africa, with an evaluation of its generic status (Diptera: Dolichopodidae s. l.: Microphorinae). *African Invertebrates*, **47**(2): 335–346.
- Sinclair, B. J. & J. M. Cumming. 2006.** The morphology, higher-level phylogeny and classification of the Empidoidea (Diptera). *Zootaxa*, **1180**: 1–172.
- Stackelberg, A. A. 1931.** Dolichopodidae der Deutschen Limnologischen Sunda-Expedition. *Archiv für Hydrobiologie Supplementband*, **8**: 771–782.
- Ulrich, H. 1981.** Zur systematischen Gliederung der Dolichopodiden (Diptera). *Bonner Zoologische Beiträge*, **31** (1980): 385–402.
- Ulrich, H. 1991.** Two new genera of parathalassine-like flies from South Africa (Diptera, Empidoidea). *Bonner Zoologische Beiträge*, **42**: 187–216.
- Vanschuytbroeck, P. 1976.** Fam. Dolichopodidae. In: *La Faune terrestre de l'Île de Sainte-Hélène (Troisième Partie)*. *Annales Musée Royal de l'Afrique Centrale*, Tervuren, ser. **8**(215): 49–57.
- Wang, M., Yang, D. & P. Grootaert. 2009.** New species of *Nepalomyia* from China (Diptera: Dolichopodidae). *Zootaxa*, 2162: 37–49.
- Yang, D., Zhu, Y. J., Wang, M. Q. & L. L. Zhang. 2006.** *World catalog of Dolichopodidae (Insecta: Diptera)*. China Agricultural University Press, Beijing: 1–704.
- Zhang, L. & D. Yang. 2005.** A study of the phylogeny of Dolichopodinae from the Palearctic and Oriental Realms, with descriptions of three new genera (Diptera, Dolichopodidae). *Acta Zootaxonomica Sinica*, **30**(1): 180–190.



1. *Achradocera africana* Parent, 1934, male habitus



2. *Achradocera africana* Parent, 1934, apex of abdomen



3. *Achradocera africana* Parent, 1934, male antenna



4. *Achradocera africana* Parent, 1934, wing

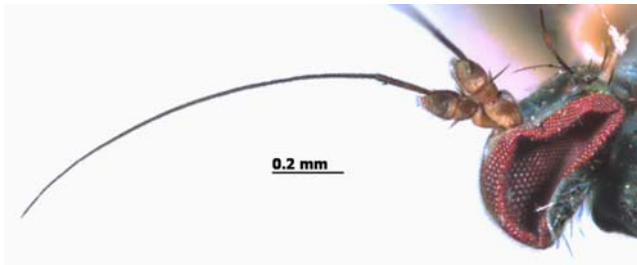


5. *Aphasmaphleps bandia* Grichanov, 2010, male habitus



6. *Aphasmaphleps bandia* Grichanov, 2010, apex of abdomen

**Figs. 1–6** – *Achradocera*, *Aphasmaphleps*.



7. *Aphasmaphleps bandia* Grichanov, 2010, male head



8. *Aphasmaphleps bandia* Grichanov, 2010, male wing



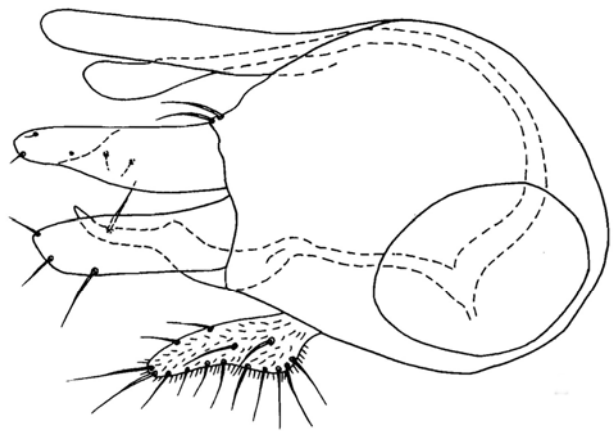
9. *Argyra* sp. (DR Congo), male habitus



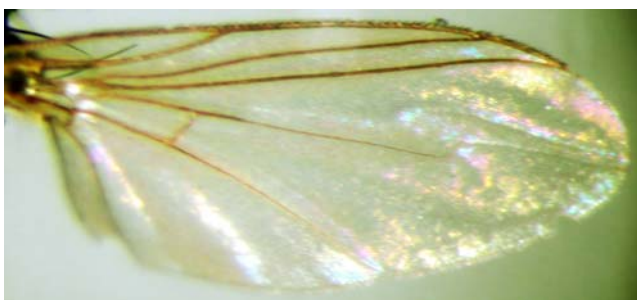
10. *Argyra* sp. (DR Congo), male head



11. *Argyra* sp. (DR Congo), male wing



12. *Argyra kireichuki* Grichanov, 1998, hypopygium



13. *Asyndetus virgatus* Curran, 1926, male wing



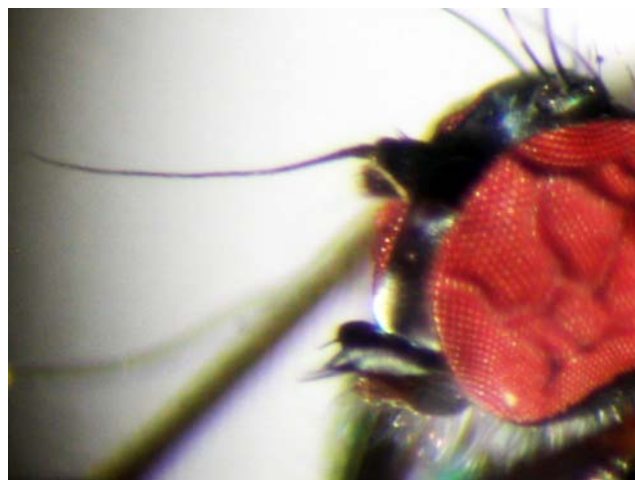
14. *Asyndetus virgatus* Curran, 1926, apex of abdomen

**Figs. 7–14** – *Aphasmaphleps*, *Argyra*, *Asyndetus*.





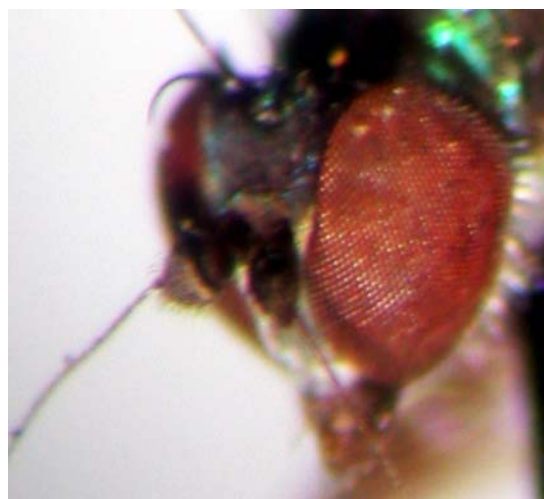
15. *Asyndetus virgatus* Curran, 1926, male habitus



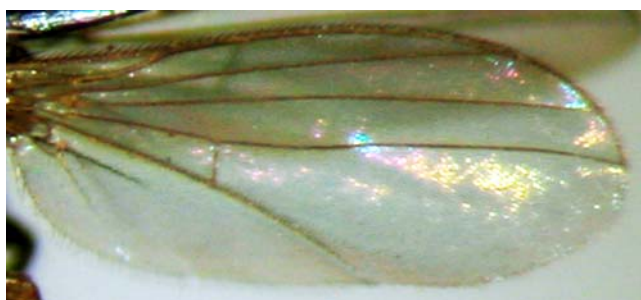
16. *Asyndetus decaryi* Parent, 1929, head



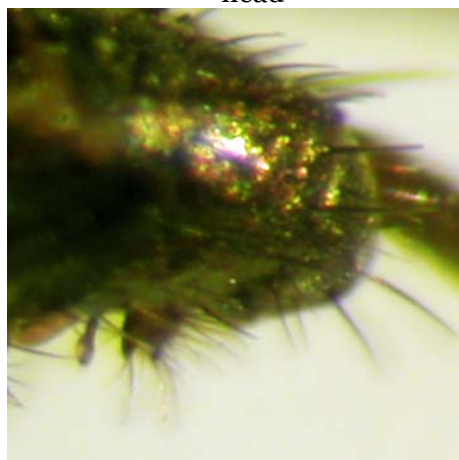
17. *Chrysotus indifferens* Curran, 1924, male habitus



18. *Chrysotus indifferens* Curran, 1924, female head



19. *Chrysotus indifferens* Curran, 1924, wing

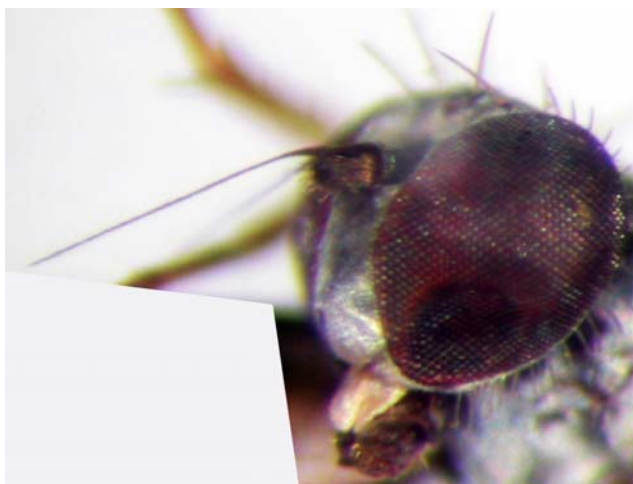


20. *Chrysotus malachiticus* Speiser, 1910, apex of abdomen

**Figs. 15–20** –*Asyndetus*, *Chrysotus*.



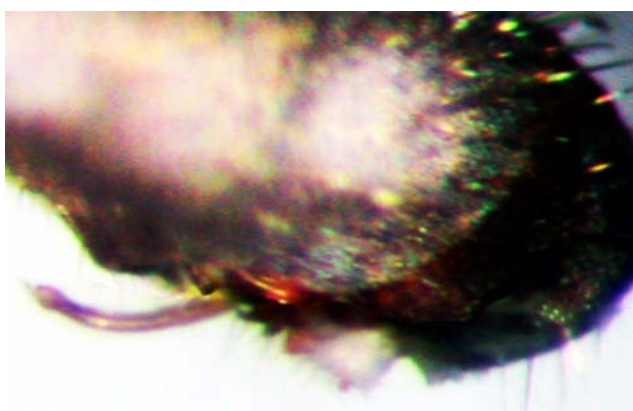
21. *Cryptophleps rothi* Couturier, 1978, male habitus



22. *Cryptophleps rothi* Couturier, 1978, head



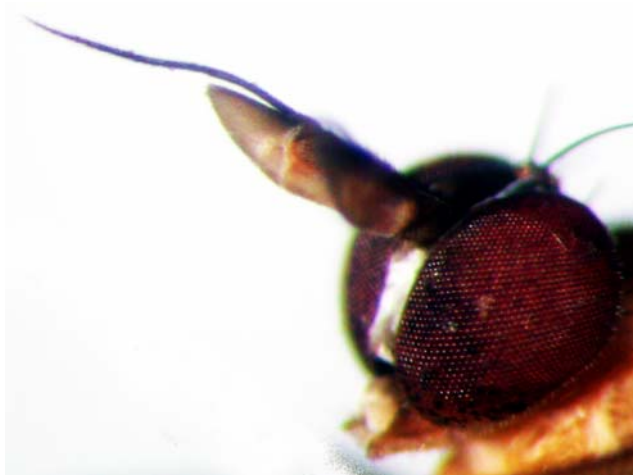
23. *Cryptophleps rothi* Couturier, 1978, wing



24. *Cryptophleps rothi* Couturier, 1978, apex of abdomen



25. *Dactylonotus univittatus* (Loew, 1858), male habitus



26. *Dactylonotus univittatus* (Loew, 1858), head

**Figs. 21–26 – *Cryptophleps*, *Dactylonotus*.**





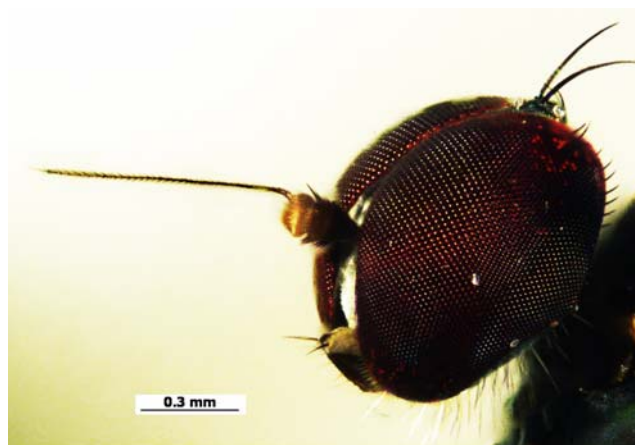
27. *Dactylonotus rudebecki* Vanschuytbroeck, 1960, wing



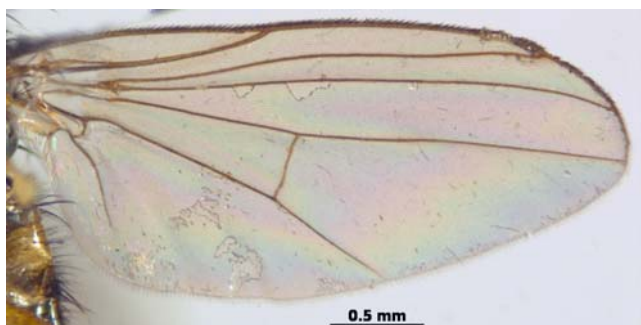
28. *Dactylonotus grandicornis* Parent, 1934, apex of abdomen



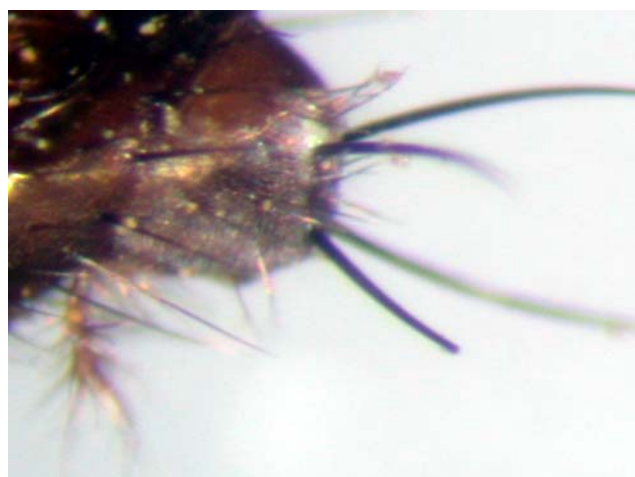
29. *Diaphorus lawrencei* Curran, 1926, male habitus, in alcohol



30. *Diaphorus lawrencei* Curran, 1926, male head

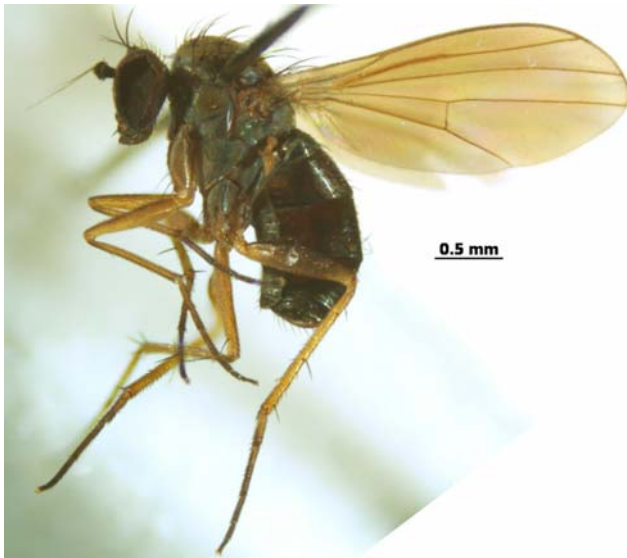


31. *Diaphorus insufficiens* Curran, 1925, wing

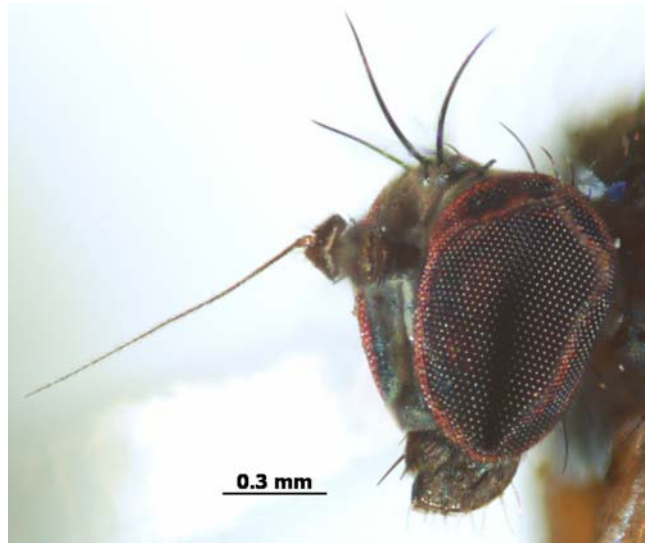


32. *Diaphorus brunneus* Loew, 1858, apex of abdomen

**Figs. 27–32** – *Dactylonotus*, *Diaphorus*.



33. *Nurteria bicolor* (Parent, 1934), male habitus



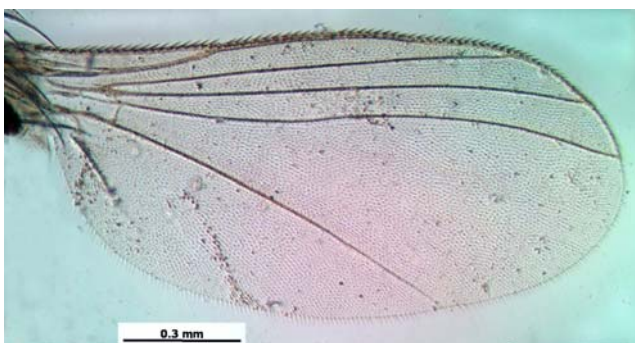
34. *Nurteria bicolor* (Parent, 1934), male head



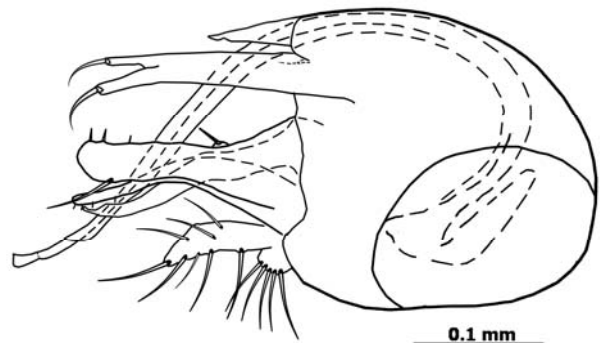
35. *Nurteria bicolor* (Parent, 1934), male wing



36. *Shamshevia hoanibensis* Grichanov, 2011, male body in alcohol



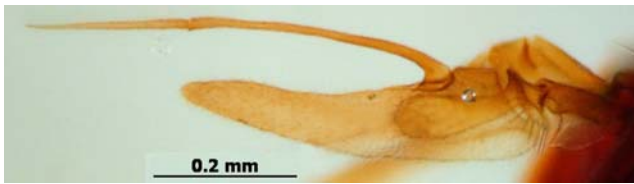
37. *Shamshevia hoanibensis* Grichanov, 2011, wing



38. *Shamshevia hoanibensis* Grichanov, 2011, hypopygium

**Figs. 33–38 – *Nurteria*, *Shamshevia*.**





39. *Shamshevia hoanibensis* Grichanov, 2011, male antenna



40. *Trigonocera munroi* (Curran, 1926), wing



41. *Trigonocera munroi* (Curran, 1926), male habitus



42. *Trigonocera munroi* (Curran, 1926), head



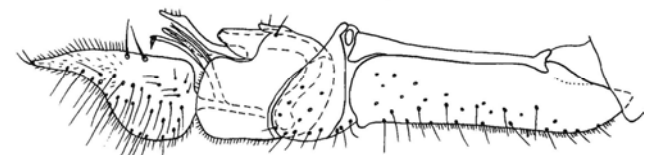
43. *Trigonocera munroi* (Curran, 1926), apex of abdomen



44. *Urodolichus lambi* Grichanov, 1998, male habitus



45. *Urodolichus lambi* Grichanov, 1998, wing



46. *Urodolichus lambi* Grichanov, 1998, hypopygium

**Figs. 39–46 – *Shamshevia*, *Trigonocera*, *Urodolichus*.**

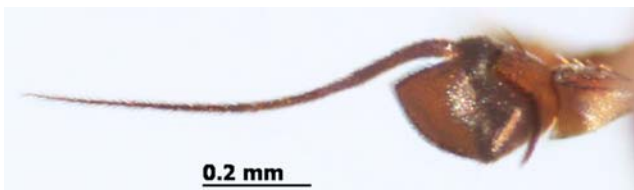




47. *Urodolichus lambi* Grichanov, 1998, head



48. *Afrohercostomus natalensis* Grichanov, 2010, male habitus



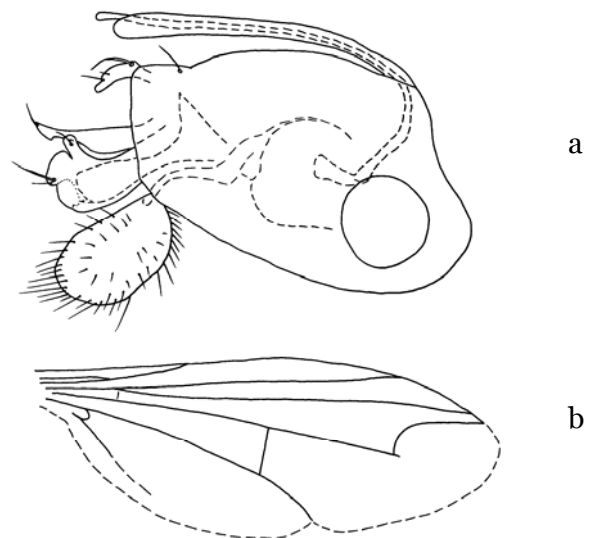
49. *Afrohercostomus natalensis* Grichanov, 2010, antenna



50. *Afrohercostomus natalensis* Grichanov, 2010, wing



51. *Afrohercostomus natalensis* Grichanov, 2010, hypopygium

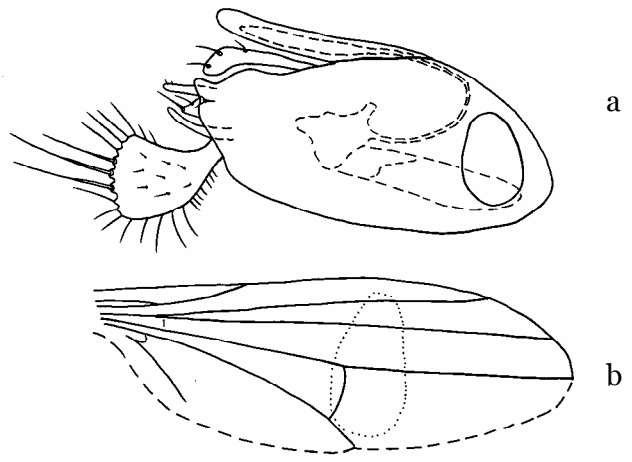


52. *Afroparaclius thompsoni* (Grichanov, 2004), hypopygium (a) and male wing (b).

**Figs. 47–52** – *Urodolichus*, *Afrohercostomus*, *Afroparaclius*.



53. *Afropelastoneurus* sp. (DR Congo), male habitus



54. *Afropelastoneurus martius* (Grichanov, 2004), hypopygium (a) and male wing (b).



55. *Afropelastoneurus* sp. (DR Congo), male head



56. *Afropelastoneurus* sp. (DR Congo), male wing



57. *Apelastoneurus gabonensis* (Grichanov, 2004), male habitus



58. *Apelastoneurus gabonensis* (Grichanov, 2004), male head

**Figs. 53–58 – *Afropelastoneurus*, *Apelastoneurus*.**





59. *Apelastoneurus gabonensis* (Grichanov, 2004), male wing



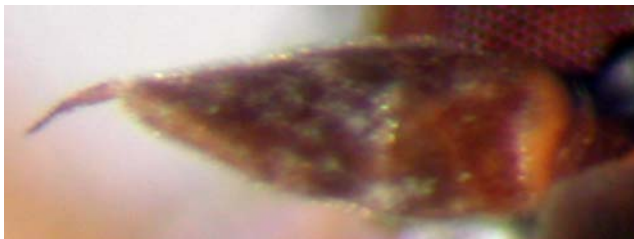
60. *Apelastoneurus gabonensis* (Grichanov, 2004), hypopygium



61. *Argyrochlamys impudicus* Lamb, 1922, female habitus



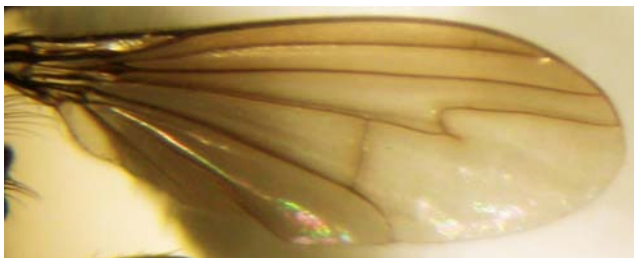
62. *Argyrochlamys angolensis* Grichanov, 2004, hypopygium



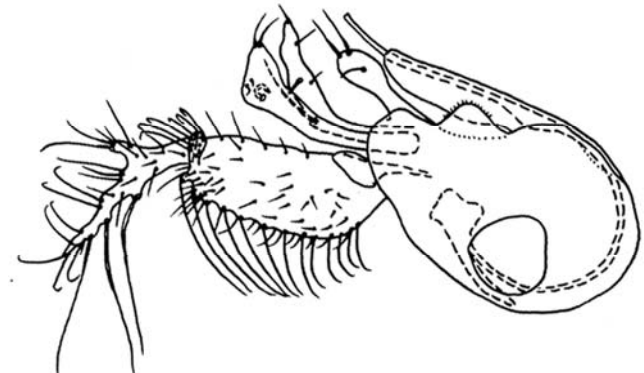
63. *Argyrochlamys angolensis* Grichanov, 2004, male antenna



64. *Argyrochlamys angolensis* Grichanov, 2004, male wing



65. *Dolichopus afroungulatus* Grichanov, 2004, wing



66. *Dolichopus afroungulatus* Grichanov, 2004, hypopygium

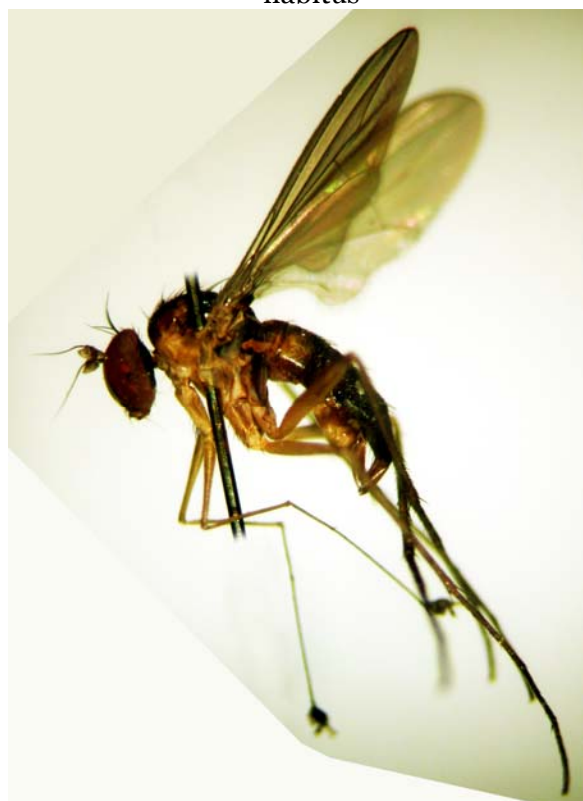
**Figs. 59–66** – *Apelastoneurus*, *Argyrochlamys*, *Dolichopus*.



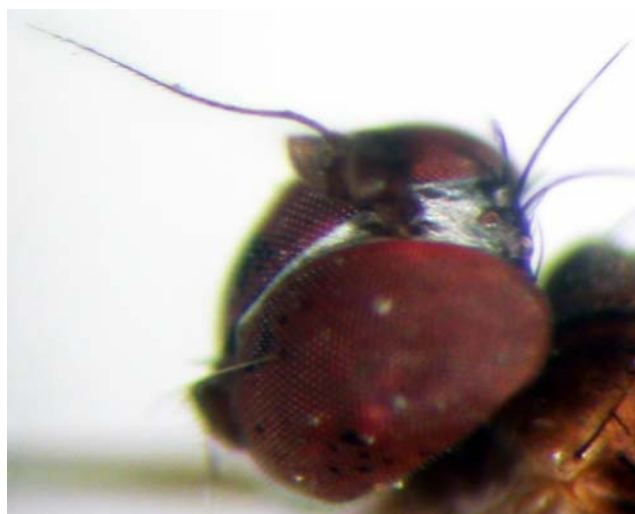
67. *Dolichopus festivus* Haliday, 1832, male habitus



68. *Dolichopus afroungulatus* Grichanov, 2004, male head



69. *Hercostomus patellitarsis* (Parent, 1934), male habitus



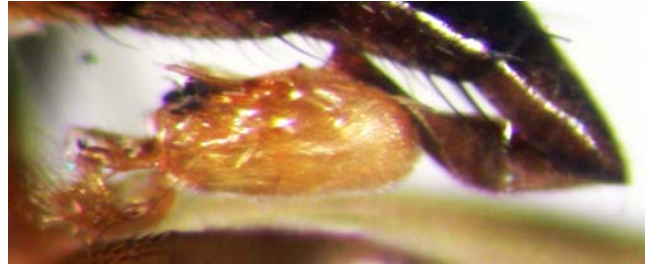
70. *Hercostomus patellitarsis* (Parent, 1934), male head

**Figs. 67–70** – *Dolichopus*, *Hercostomus*.

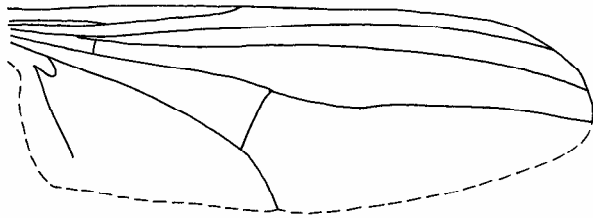




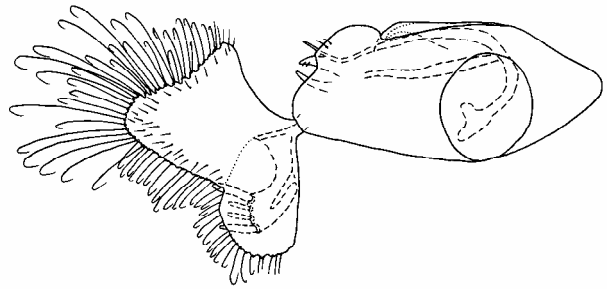
71. *Hercostomus patellitarsis* (Parent, 1934),  
male wing



72. *Hercostomus perturbus* Curran, 1924,  
postabdomen



73. *Katangaia ethiopiensis* (Grichanov, 2004),  
wing



74. *Katangaia ethiopiensis* (Grichanov, 2004),  
hypopygium



75. *Lichtwardtia angularis* (Macquart, 1842),  
male habitus



76. *Lichtwardtia fractinervis* (Parent, 1929),  
head



77. *Lichtwardtia sukharevae* Grichanov, 1998,  
wing



78. *Lichtwardtia angularis* (Macquart, 1842),  
hypopygium

**Figs. 71–78 – *Hercostomus*, *Katangaia*, *Lichtwardtia*.**



79. *Nehercostomus silvicola* Grichanov, 2011, male habitus



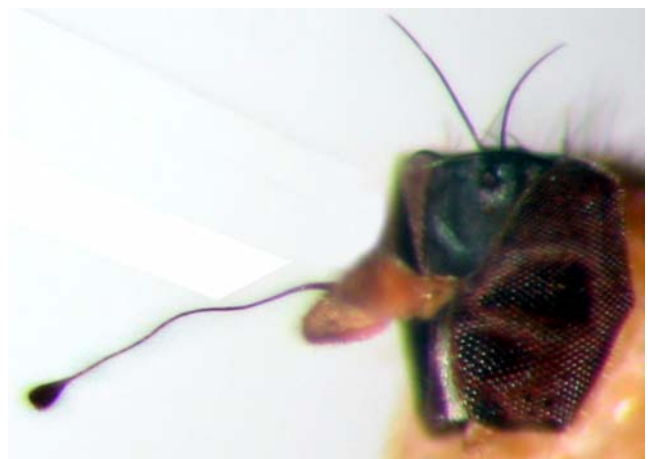
80. *Nehercostomus manningi* Grichanov, 2011, antenna



81. *Nehercostomus ashleyi* Grichanov, 2011, wing



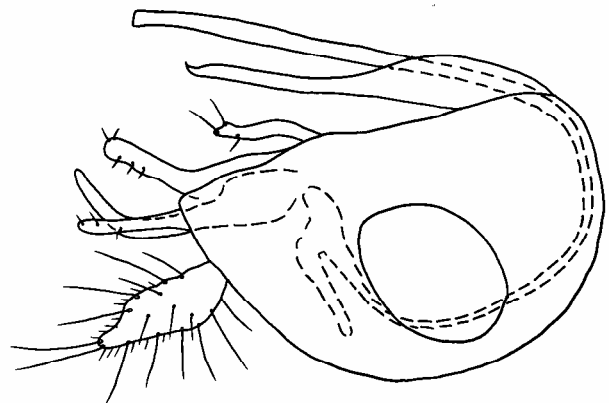
82. *Nehercostomus ashleyi* Grichanov, 2011, hypopygium



83. *Pseudargyrochlamys barracloughi* (Grichanov, 2004), head



84. *Pseudargyrochlamys barracloughi* (Grichanov, 2004), wing



85. *Pseudargyrochlamys michaeli* (Grichanov, 2004), hypopygium

**Figs. 79–85** – *Nehercostomus*, *Pseudargyrochlamys*.

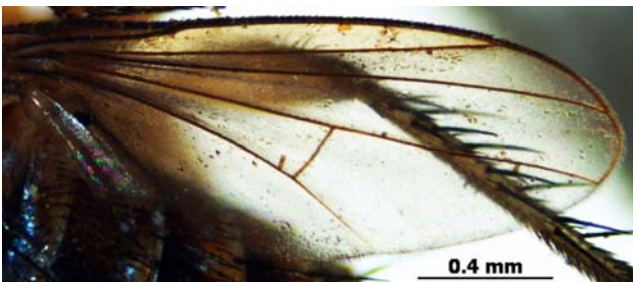




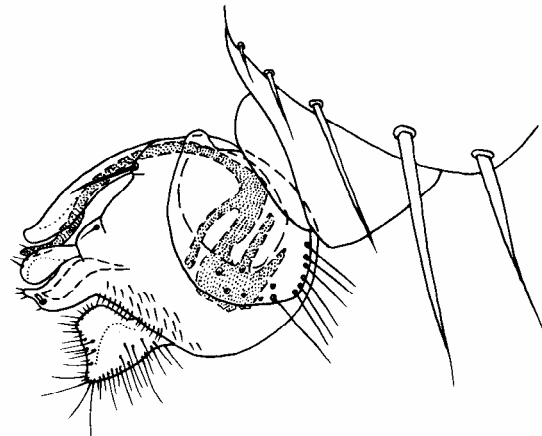
86. *Pseudargyrochlamys barracloughi* (Grichanov, 2004), male habitus



87. *Pseudohercostomus echinatus* (Stackelberg, 1931), male habitus



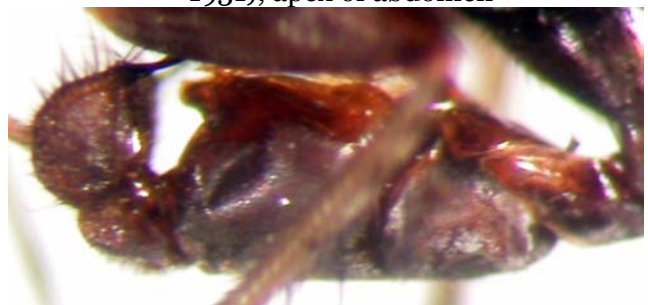
88. *Pseudohercostomus echinatus* (Stackelberg, 1931), wing



89. *Pseudohercostomus echinatus* (Stackelberg, 1931), apex of abdomen



90. *Pseudoparaclius afer* (Curran, 1926), wing



91. *Pseudoparaclius funditor* (Curran, 1926), hypopygium

**Figs. 86–91** – *Pseudargyrochlamys*, *Pseudohercostomus*, *Pseudoparaclius*.



92. *Pseudoparaclius funditor* (Curran, 1926),  
male habitus



93. *Pseudoparaclius funditor* (Curran, 1926),  
male head



94. *Pseudopelastoneurus diversifemur* (Parent,  
1935), male habitus



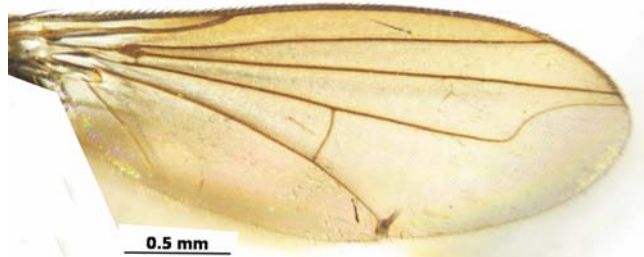
95. *Pseudopelastoneurus diversifemur* (Parent,  
1935), apex of abdomen

**Figs. 92–95** – *Pseudoparaclius*, *Pseudopelastoneurus*.





96. *Pseudopelastoneurus diversifemur* (Parent, 1935), male head



97. *Pseudopelastoneurus diversifemur* (Parent, 1935), male wing



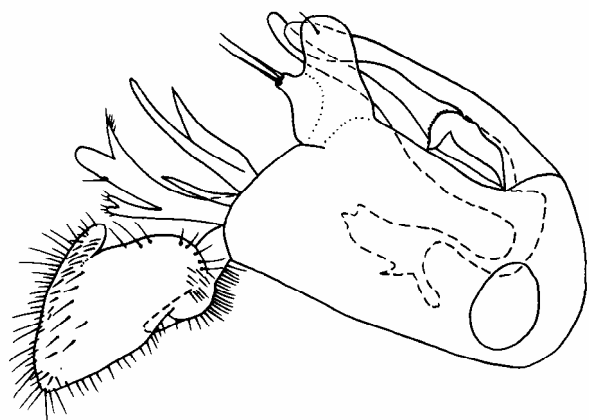
98. *Sybistroma bogoria* (Grichanov, 2004), male habitus



99. *Sybistroma bogoria* (Grichanov, 2004), head

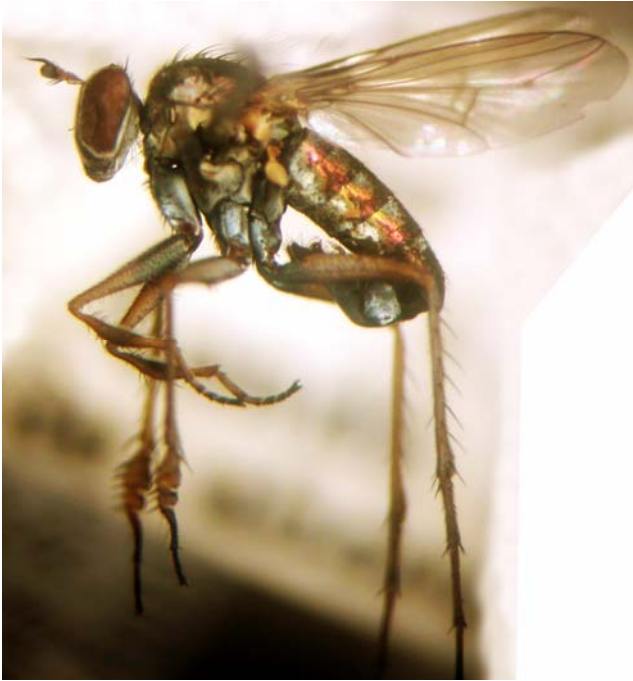


100. *Sybistroma bogoria* (Grichanov, 2004), wing



101. *Sybistroma bogoria* (Grichanov, 2004), hypopygium

**Figs. 96–101** – *Pseudopelastoneurus*, *Sybistroma*.



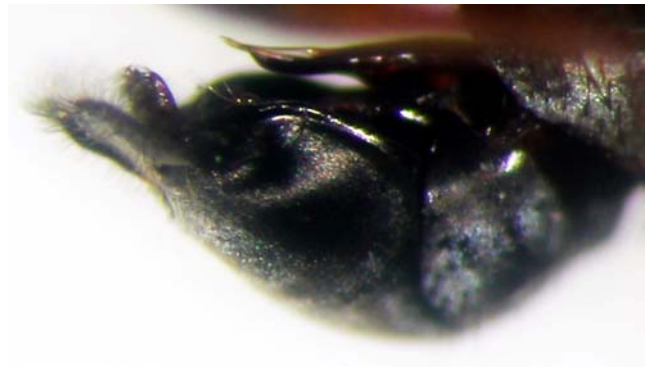
102. *Tachytrechus pteropodus* Schiner, 1868,  
male habitus



103. *Tachytrechus luteicoxa* Parent, 1929,  
head



104. *Tachytrechus imperator* Curran, 1927,  
wing



105. *Tachytrechus bracteatus*  
(Wiedemann, 1830), hypopygium



106. *Aphrosylus* sp. (South Africa), male  
habitus



107. *Aphrosylus* sp. (South Africa), male head

**Figs. 102–107 – *Tachytrechus*, *Aphrosylus*.**





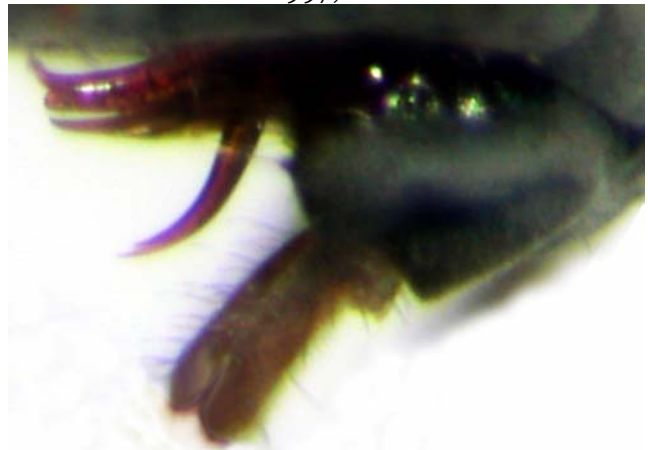
108. *Cemocarus griseatus* (Curran, 1926), male habitus



109. *Cemocarus stuckenbergi* Grichanov, 1997, head



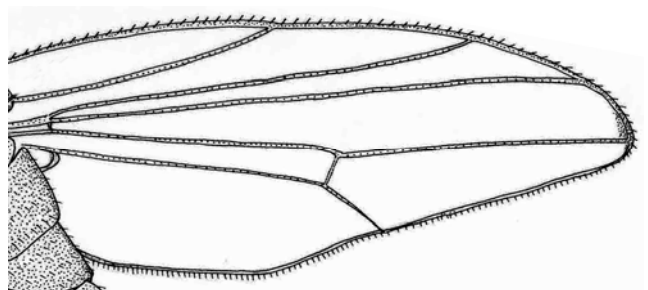
110. *Cemocarus stuckenbergi* Grichanov, 1997, wing



111. *Cemocarus griseatus* (Curran, 1926), hypopygium

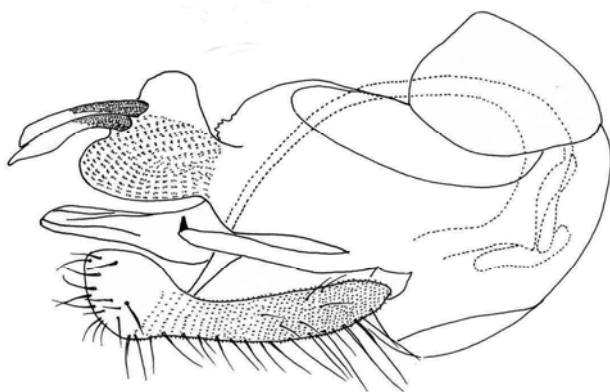


112. *Cymatopus stuckenbergi* (Grootaert & Grichanov 2008), male habitus



113. *Cymatopus stuckenbergi* (Grootaert & Grichanov 2008), wing

**Figs. 108–113** – *Cemocarus*, *Cymatopus*.



114. *Cymatopus stuckenbergi* (Grootaert & Grichanov 2008), hypopygium



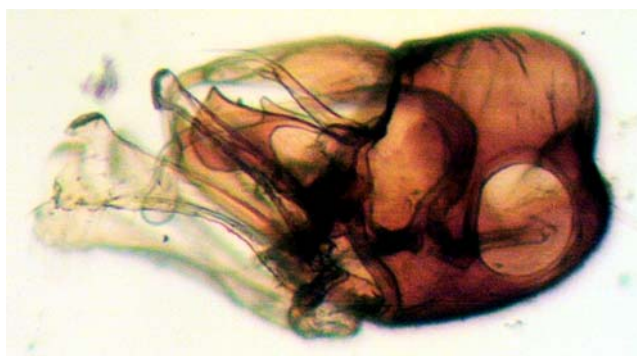
115. *Epithalassius corsicanus* Becker, 1910, wing



116. *Epithalassius corsicanus* Becker, 1910, male habitus



117. *Epithalassius corsicanus* Becker, 1910, head



118. *Epithalassius corsicanus* Becker, 1910, hypopygium



119. *Hydatostega carmichaeli* (Walker, 1849), head

**Figs. 114–119 – *Cymatopus*, *Epithalassius*, *Hydatostega*.**

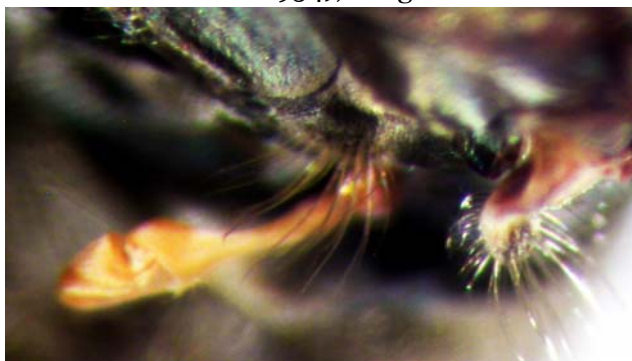




120. *Hydatostega carmichaeli* (Walker, 1849), male habitus



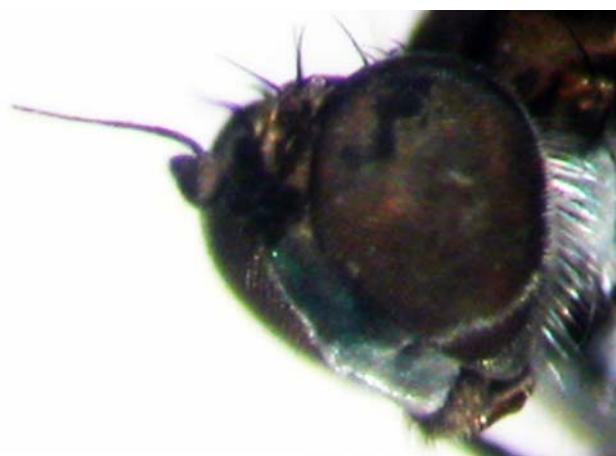
121. *Hydatostega christopherseni* (Frey, 1954), wing



122. *Hydatostega tristanensis* (Macquart, 1847), male genital appendages

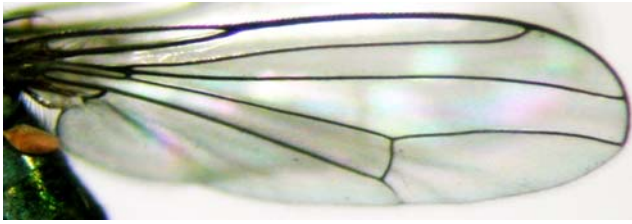


123. *Hydrophorus spinicornis* Loew, 1858, male habitus

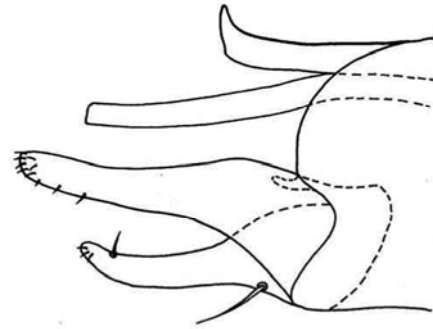


124. *Hydrophorus spinicornis* Loew, 1858, male head

**Figs. 120–124** – *Hydatostega*, *Hydrophorus*.



125. *Hydrophorus spinicornis* Loew, 1858, wing



126. *Hydrophorus spinicornis* Loew, 1858, apex of hypopygium



127. *Liancalus vaillanti* Dyte, 1967, male habitus



128. *Liancalus peringueyi* Curran, 1926, head



129. *Liancalus peringueyi* Curran, 1926, wing



130. *Liancalus vaillanti* Dyte, 1967, postabdomen



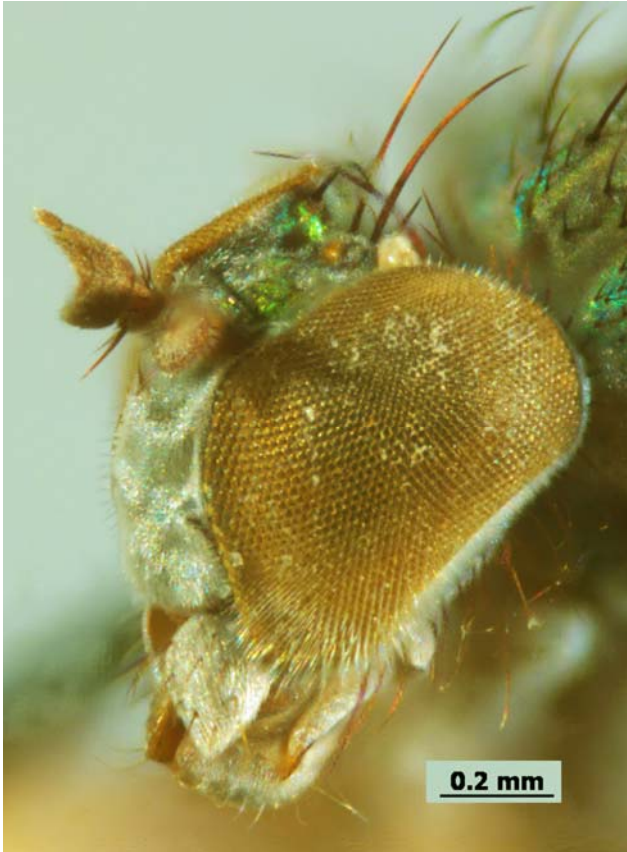
131. *Machaerium thinophilum* (Loew, 1857), male habitus



132. *Machaerium thinophilum* (Loew, 1857), postabdomen

**Figs. 125–132** – *Hydrophorus*, *Liancalus*, *Machaerium*.

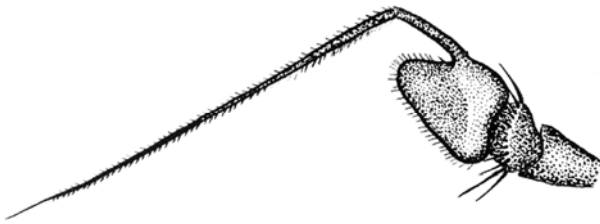




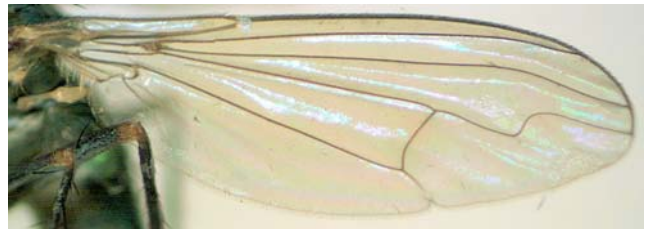
133. *Machaerium thinophilum* (Loew, 1857),  
male head



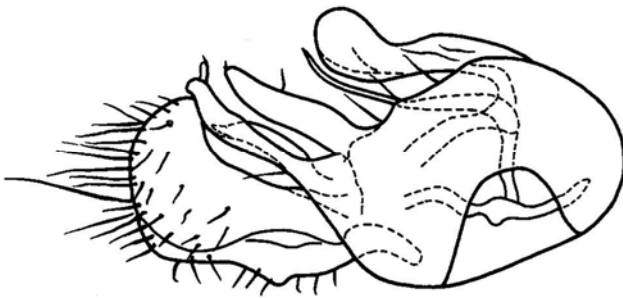
134. *Orthoceratium lacustre* (Scopoli, 1763),  
male habitus



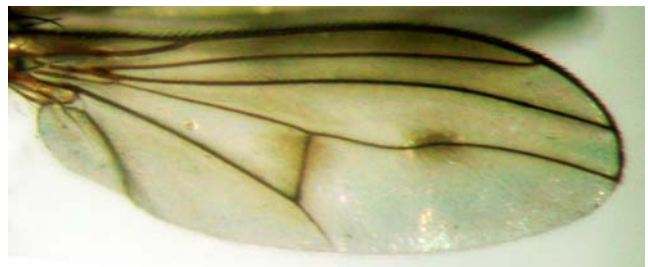
135. *Orthoceratium lacustre* (Scopoli, 1763),  
antenna



136. *Orthoceratium lacustre* (Scopoli, 1763),  
wing



137. *Orthoceratium lacustre* (Scopoli, 1763),  
hypopygium



138. *Thinophilus bipunctatus* Curran, 1926, wing

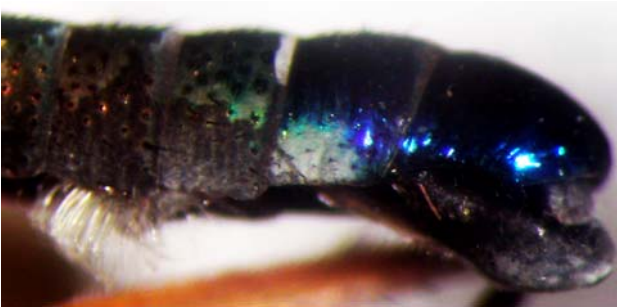
**Figs. 133–138** – *Machaerium*, *Orthoceratium*, *Thinophilus*.



139. *Thinophilus munroi* Curran, 1926, male habitus



140. *Thinophilus imperialis* (Curran, 1924), head



141. *Thinophilus ciliventris* Grichanov, 1997, abdomen



142. *Corindia verschureni* Grichanov, 1998, wing



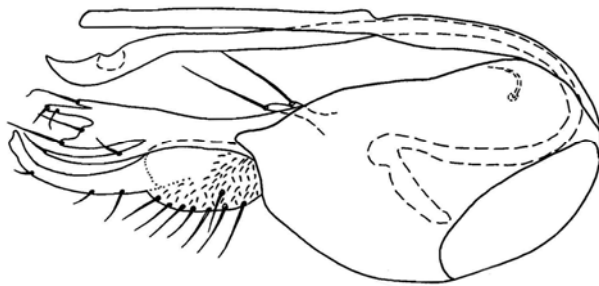
143. *Corindia verschureni* Grichanov, 1998, male habitus



144. *Corindia verschureni* Grichanov, 1998, head

**Figs. 139–144 – *Thinophilus*, *Corindia*.**





145. *Corindia verschureni* Grichanov, 1998,  
hypopygium



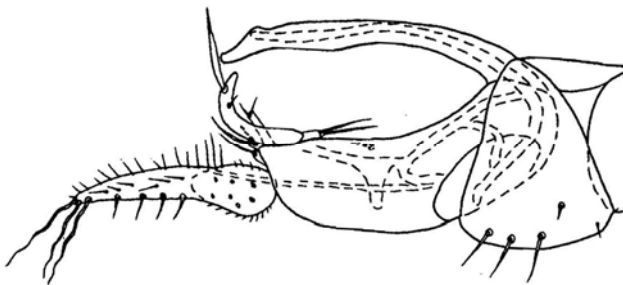
146. *Craterophorus currani* Grichanov, 1998,  
wing



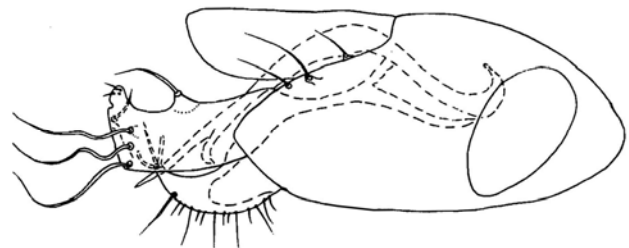
147. *Craterophorus currani* Grichanov,  
1998, male habitus



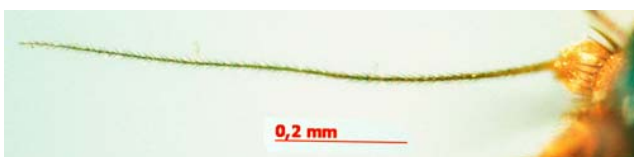
148. *Craterophorus currani* Grichanov, 1998,  
head



149. *Craterophorus currani* Grichanov, 1998,  
hypopygium



150. *Demetera demeteri* (Grichanov, 1997),  
hypopygium



151. *Dolichophorus friedmani* Grichanov, 2009,  
antenna

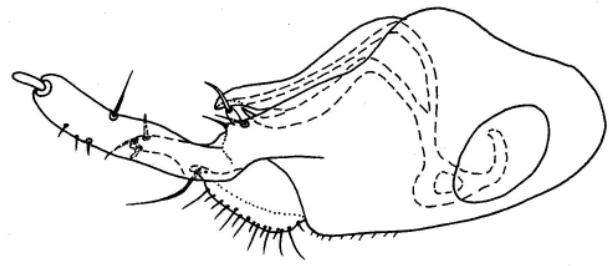


152. *Dolichophorus friedmani* Grichanov, 2009,  
wing

**Figs. 145–152** – *Corindia*, *Craterophorus*, *Demetera*, *Dolichophorus*.



153. *Dolichophorus friedmani* Grichanov, 2009, male habitus



154. *Dolichophorus luteoscutatus* (Parent, 1936), hypopygium



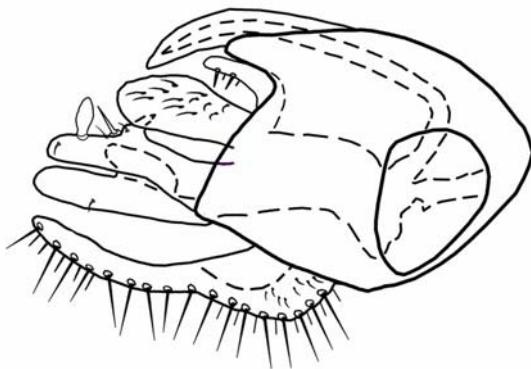
155. *Euxiphocerus savannensis* Grichanov, 2009, male habitus



156. *Euxiphocerus savannensis* Grichanov, 2009, male antenna



157. *Euxiphocerus savannensis* Grichanov, 2009, wing



158. *Euxiphocerus savannensis* Grichanov, 2009, hypopygium



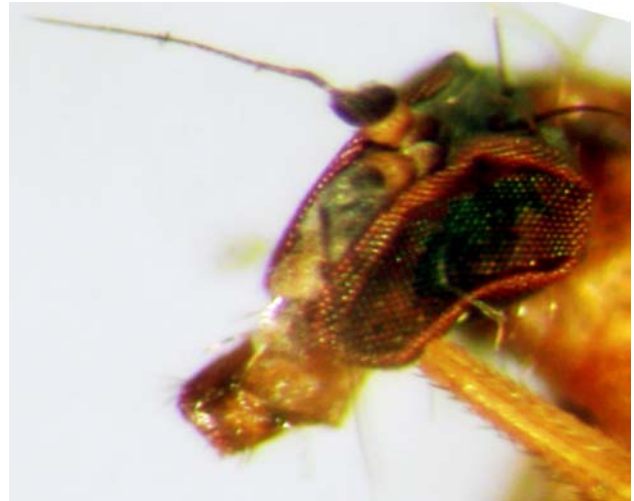
159. *Grootaertia irwini* Grichanov, 2000, wing

**Figs. 153–159 – *Dolichophorus*, *Euxiphocerus*, *Grootaertia*.**

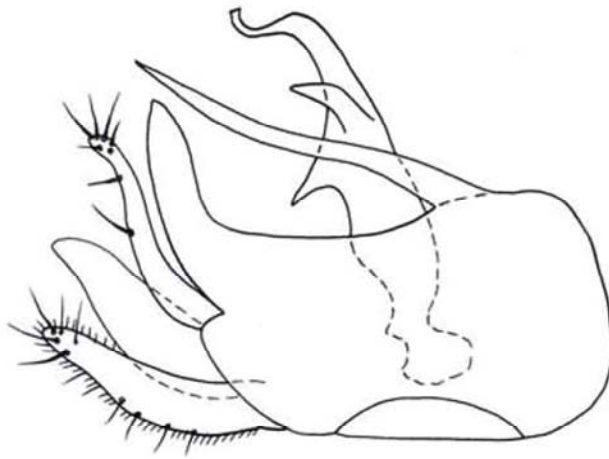




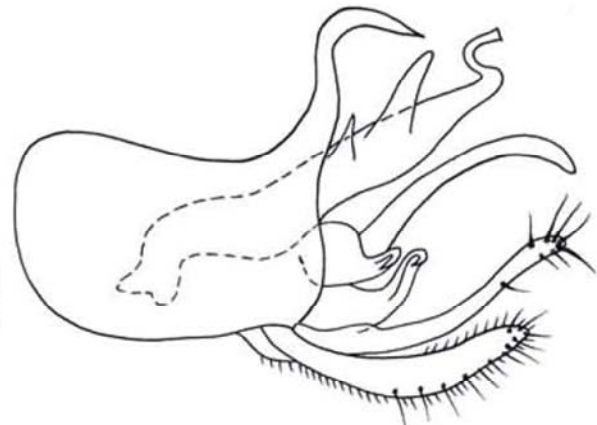
160. *Grootaertia kuznetsovi* Grichanov, 1999, male habitus



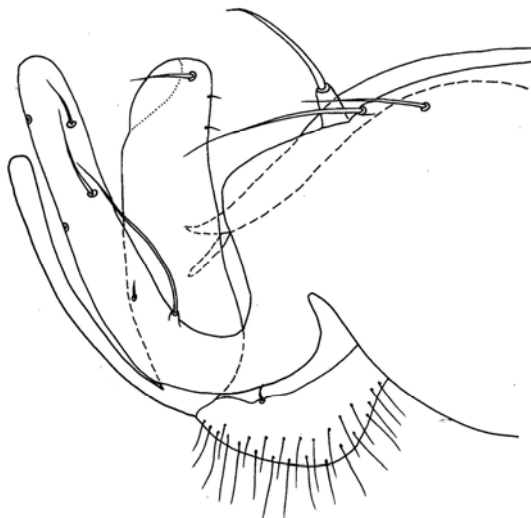
161. *Grootaertia brevipennis* Grichanov, 2000, head



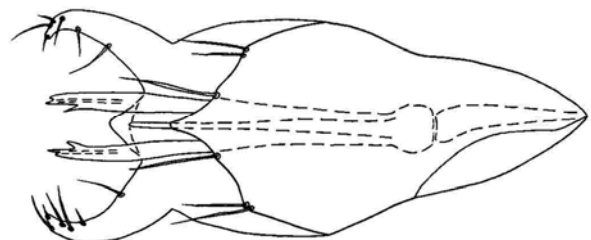
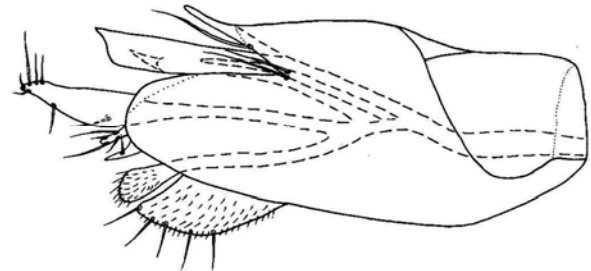
162. *Grootaertia skorpionensis* Grichanov, 2006, hypopygium, left lateral aspect



163. *Grootaertia skorpionensis* Grichanov, 2006, hypopygium, right lateral aspect



164. *Medeterella pospelovi* (Grichanov, 1997), apex of hypopygium

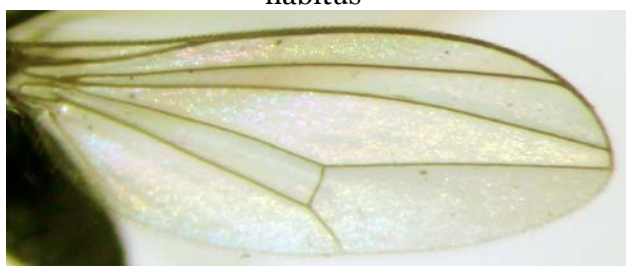


165. *Paramedetera sierraleonensis* Grichanov, 1999, hypopygium laterally and ventrally

**Figs. 160–165 – *Grootaertia*, *Medeterella*, *Paramedetera*.**



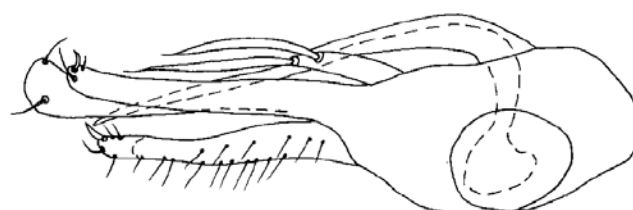
166. *Medetera penura* Curran, 1926, male habitus



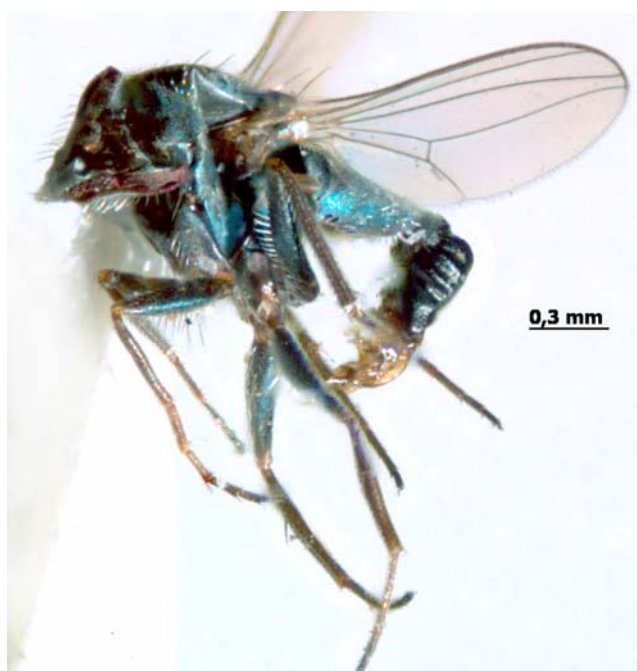
168. *Medetera vaalensis* Grichanov, 2000, wing



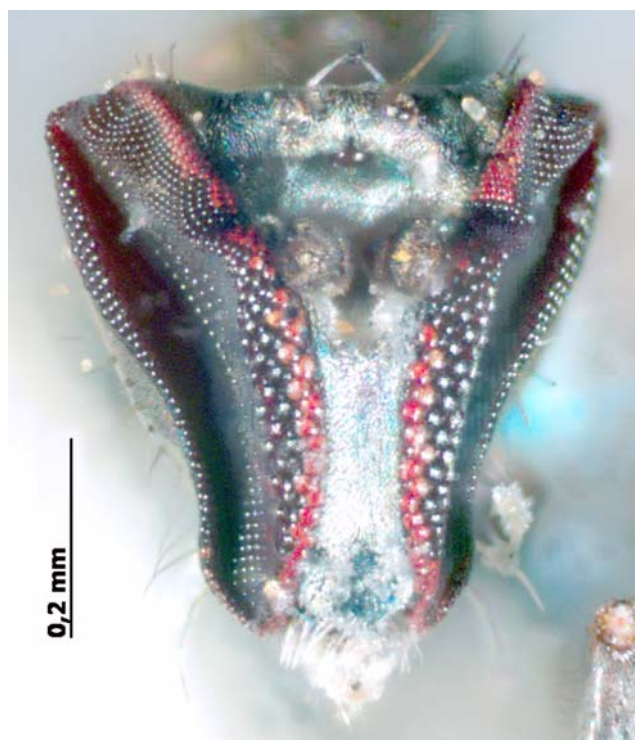
167. *Medetera maynei* Curran, 1925, head



169. *Medetera cimbebasia* Grichanov, 2000, hypopygium



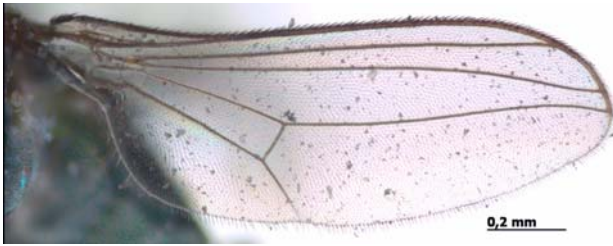
170. *Nikitella vikhrevi* Grichanov, 2011, male habitus



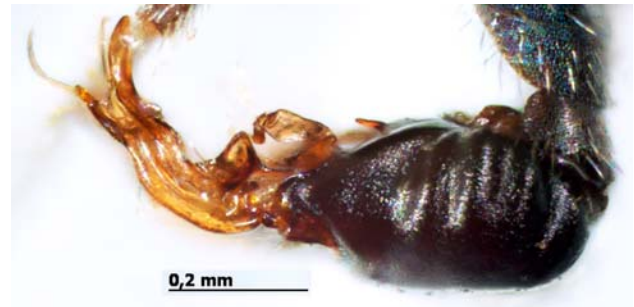
171. *Nikitella vikhrevi* Grichanov, 2011, head

**Figs. 166–171 – *Medetera*, *Nikitella*.**





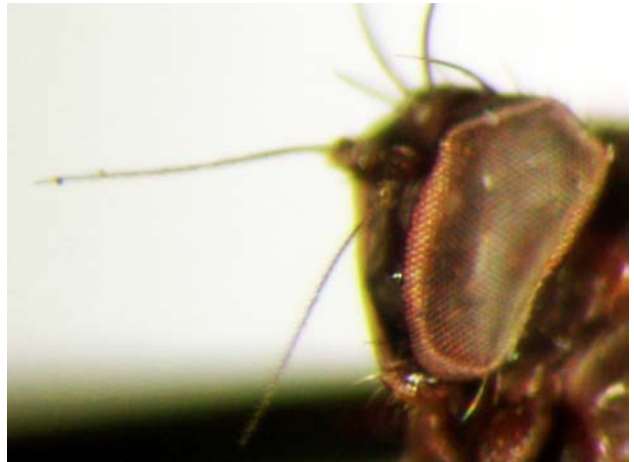
172. *Nikitella vikhrevi* Grichanov, 2011, wing



173. *Nikitella vikhrevi* Grichanov, 2011, postabdomen



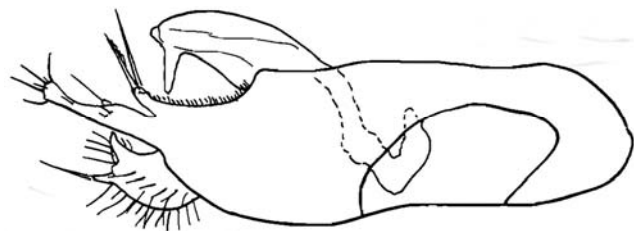
174. *Saccopheronta arnaudi* Negrobov, Vanschuytbroeck et Grichanov, 1981, male habitus



175. *Saccopheronta caffra* (Curran, 1927), head



176. *Saccopheronta caffra* (Curran, 1927), wing



177. *Saccopheronta glabra* Negrobov, Vanschuytbroeck et Grichanov, 1981, hypopygium



178. *Systemomorphus katyushae* Grichanov, 2010, male antenna



179. *Systemomorphus katyushae* Grichanov, 2010, female antenna

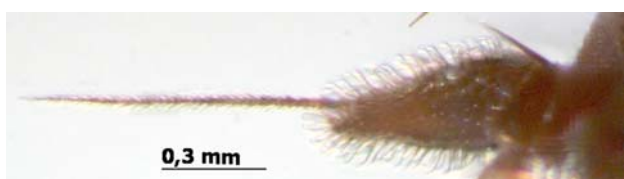
**Figs. 172–179 – *Nikitella*, *Saccopheronta*, *Systemomorphus*.**



180. *Systemomorphus katyushae* Grichanov, 2010, wing



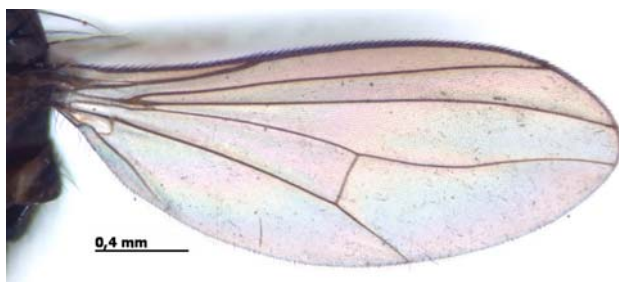
181. *Systemomorphus katyushae* Grichanov, 2010, postabdomen



182. *Systemoneurus ovechkiniae* Grichanov, 2010, male antenna



183. *Systemoneurus ovechkiniae* Grichanov, 2010, female antenna



184. *Systemoneurus ovechkiniae* Grichanov, 2010, wing



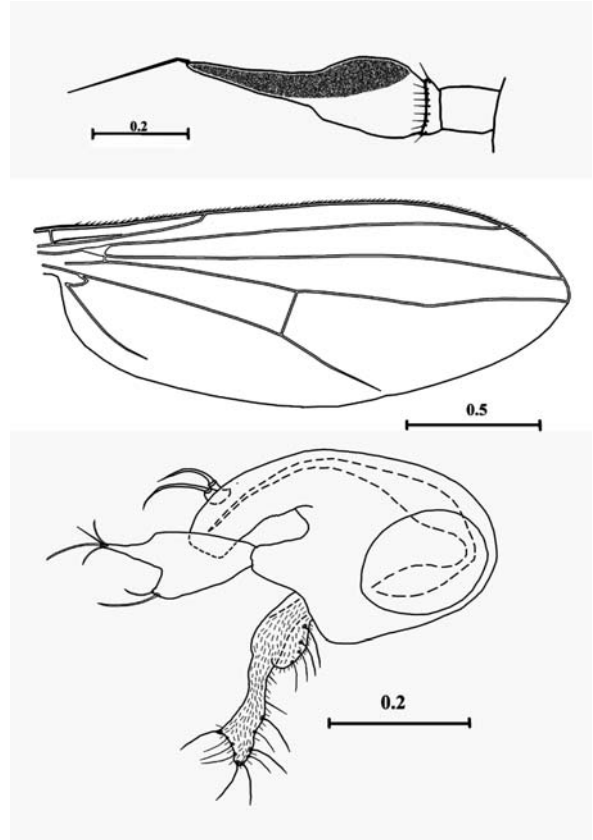
185. *Systemoneurus ovechkiniae* Grichanov, 2010, postabdomen

**Figs. 180–185** – *Systemomorphus*, *Systemoneurus*.





186. *Systemus africanus* Grichanov, 2009, male habitus



187. *Systemus africanus* Grichanov, 2009, antenna, wing and hypopygium



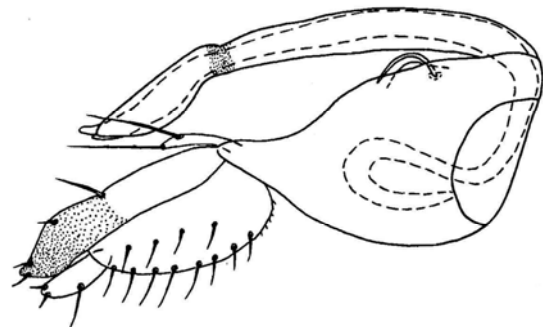
188. *Thrypticus kataevi* Grichanov, 1998, male habitus



189. *Thrypticus kataevi* Grichanov, 1998, head



190. *Thrypticus kataevi* Grichanov, 1998, wing



191. *Thrypticus kataevi* Grichanov, 1998, hypopygium

**Figs. 186–191 – *Systemus*, *Thrypticus*.**



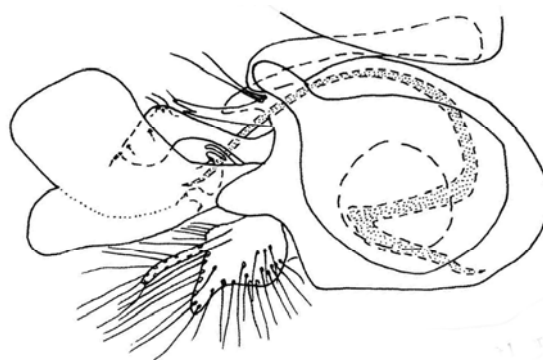
192. *Tenuopus maculatus* Parent, 1931, male habitus



194. *Tenuopus acrosticalis* Curran, 1927, wing



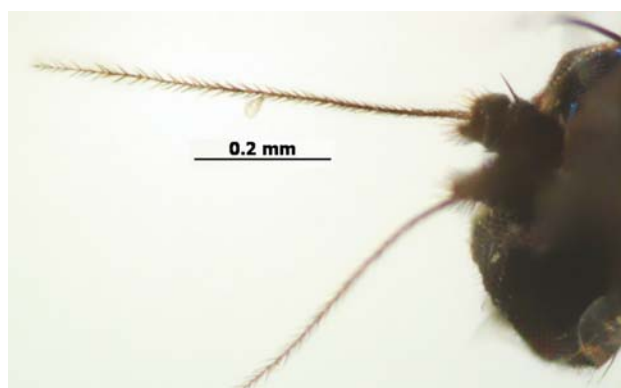
193. *Tenuopus acrosticalis* Curran, 1927, head



195. *Tenuopus taitensis* Grichanov, 2000, hypopygium



196. *Acropsilus brevitalis* (Parent, 1937), male habitus



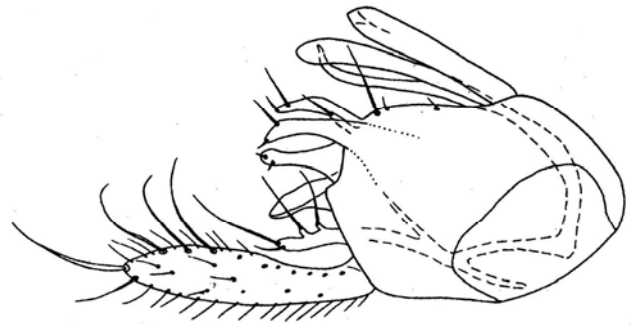
197. *Acropsilus brevitalis* (Parent, 1937), head

**Figs. 192–197 – *Tenuopus*, *Acropsilus*.**





198. *Acropsilus brevitalus* (Parent, 1937),  
wing



199. *Acropsilus brevitalus* (Parent, 1937),  
hypopygium



200. *Griphophanes congoensis* Grichanov,  
2010, male habitus



201. *Griphophanes congoensis* Grichanov,  
2010, head



202. *Griphophanes garambaensis*  
Grichanov, 2010, wing

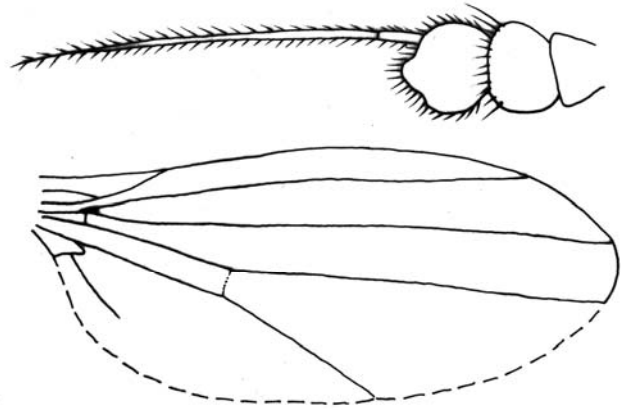


203. *Griphophanes garambaensis* Grichanov,  
2010, hypopygium, right lateral aspect

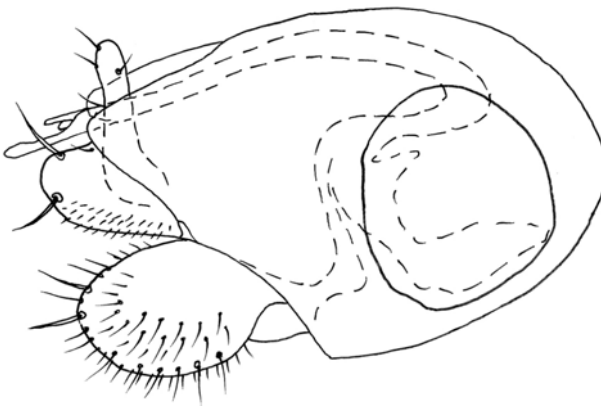
**Figs. 198–203** – *Acropsilus*, *Griphophanes*.



204. *Meuffelsia erasmusorum* Grichanov, 2008, male habitus



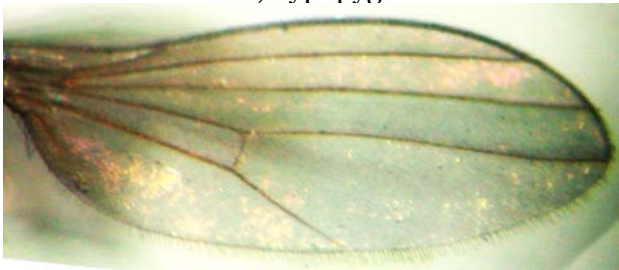
205. *Meuffelsia erasmusorum* Grichanov, 2008, antenna and wing



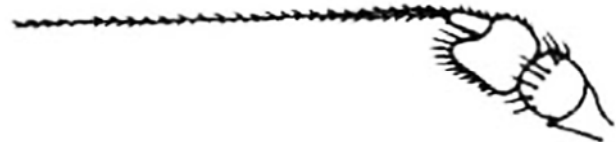
206. *Meuffelsia erasmusorum* Grichanov, 2008, hypopygium



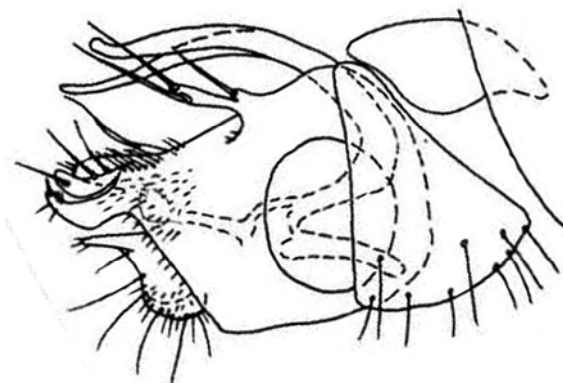
207. *Micromorphus aristalis* (Curran, 1926), female holotype habitus



208. *Micromorphus aristalis* (Curran, 1926), wing



209. *Micromorphus M. maraisi* Grichanov, 2000, antenna



210. *Micromorphus maraisi* Grichanov, 2000, hypopygium



211. *Nepalomyia kotrbae* Grichanov, 2010, wing

**Figs. 204–211 – *Meuffelsia*, *Micromorphus*, *Nepalomyia*.**





212. *Nepalomyia kotrbae* Grichanov, 2010, male habitus (after maceration)



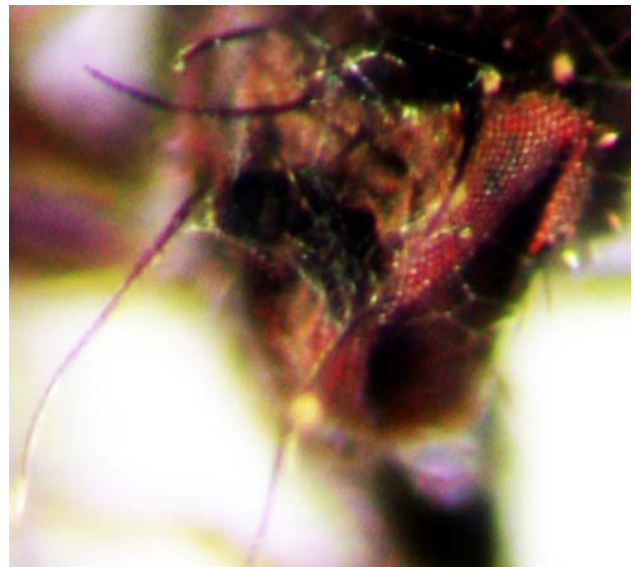
213. *Nepalomyia kotrbae* Grichanov, 2010, head



214. *Nepalomyia kotrbae* Grichanov, 2010, hypopygium (after maceration)



215. *Peloropeodes niger* (Curran, 1926), female holotype habitus

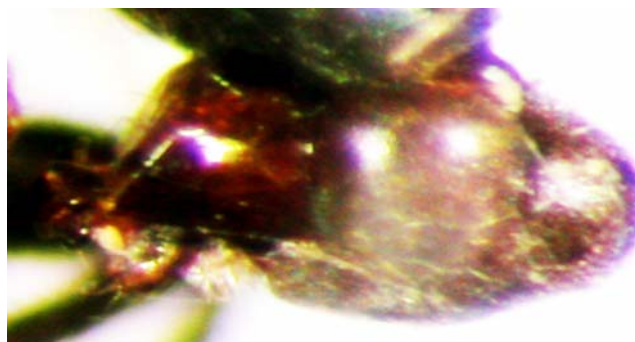


216. *Peloropeodes decembris* Grichanov, 2000, head

**Figs. 212–216** – *Nepalomyia*, *Peloropeodes*.



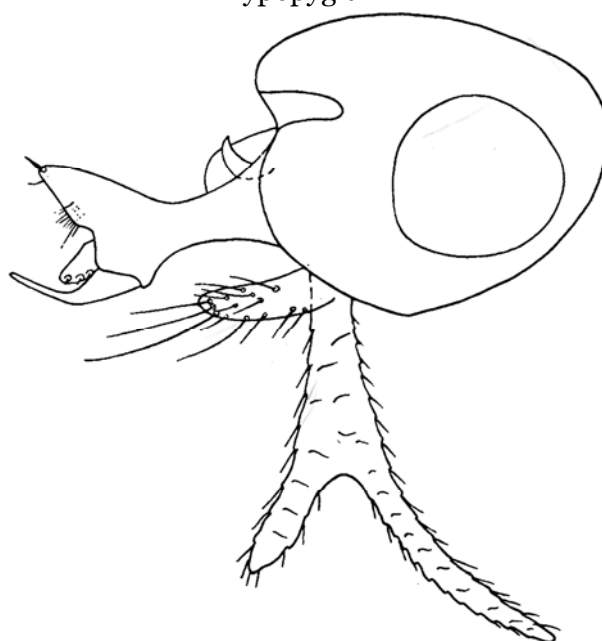
217. *Peloropecodes decembris* Grichanov, 2000, wing



218. *Peloropecodes decembris* Grichanov, 2000, hypopygium



219. *Rhaphium currani* (Parent, 1939), male habitus Vanschuytbroeck, 1951), hypopygium



220. *Rhaphium sexsetosum* (Vanschuytbroeck, 1951), hypopygium



221. *Rhaphium shamshevi* Grichanov, 1995, head



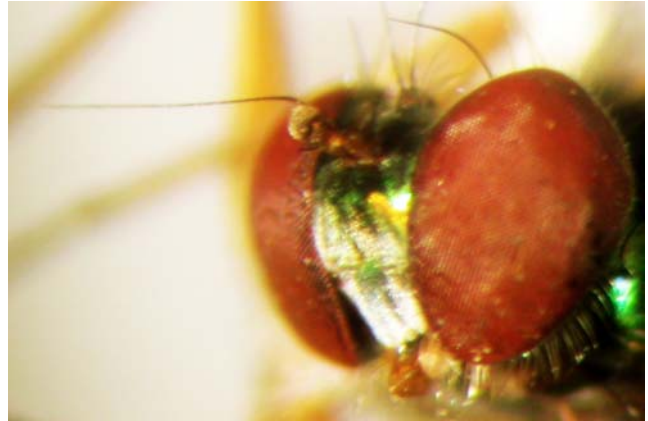
222. *Rhaphium shamshevi* Grichanov, 1995, wing

**Figs. 217–222** – *Peloropecodes*, *Rhaphium*.





223. *Amblypsilopus stuckenbergorum* (Irwin, 1974), male habitus



224. *Amblypsilopus stuckenbergorum* (Irwin, 1974), head



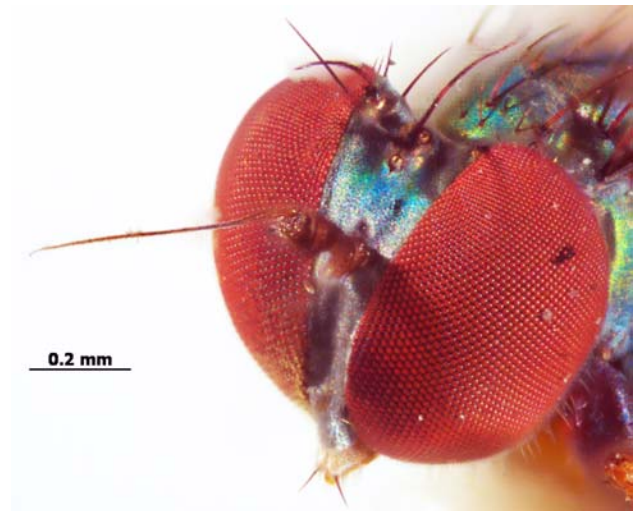
225. *Amblypsilopus tenuicauda* (Parent, 1936), wing



226. *Amblypsilopus rosaceus* (Wiedemann, 1824), hypopygium



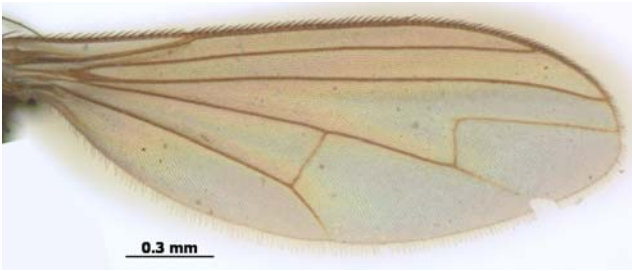
227. *Bickelia parallela* (Macquart, 1842), male habitus



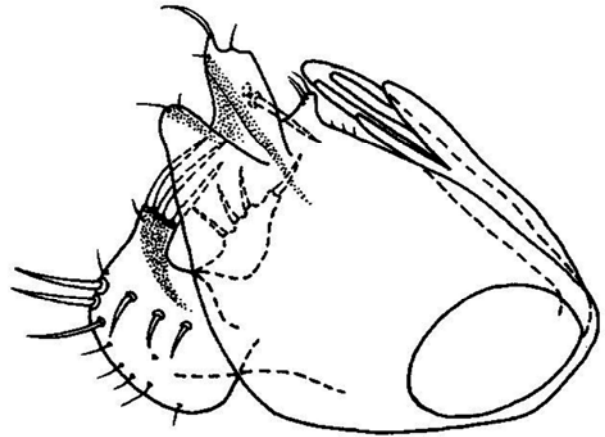
228. *Bickelia parallela* (Macquart, 1842), head

**Figs. 223–228 – *Amblypsilopus*, *Bickelia*.**





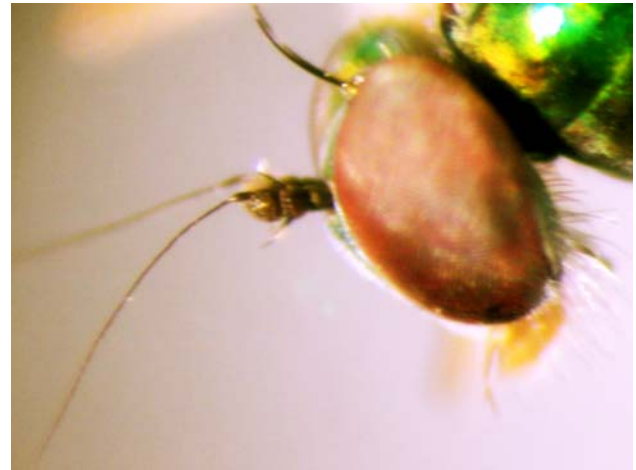
229. *Bickelia parallela* (Macquart, 1842),  
wing



230. *Bickelia parallela* (Macquart, 1842),  
hypopygium



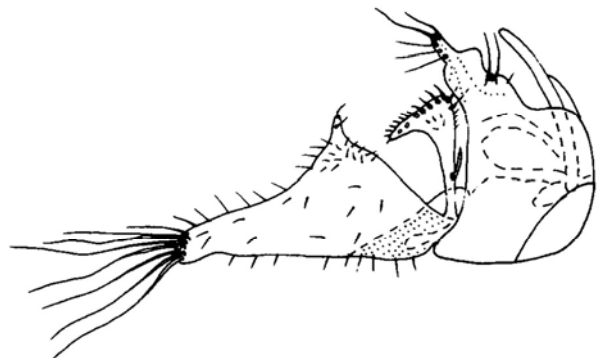
231. *Bickeliolus trochanteralis* (Curran, 1924),  
male habitus



232. *Bickeliolus trochanteralis* (Curran, 1924),  
head



233. *Bickeliolus trochanteralis* (Curran,  
1924), wing



234. *Bickeliolus maslovae* (Grichanov, 1996),  
hypopygium

**Figs. 229–234** – *Bickelia*, *Bickeliolus*.



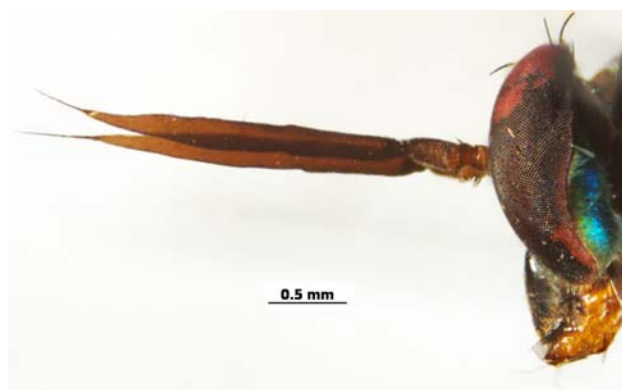
235. *Chrysosoma tricrinittum* Parent, 1933, male habitus



236. *Chrysosoma villiersi* (Vanschuytbroeck, 1970), male head



237. *Chrysosoma villiersi* (Vanschuytbroeck, 1970), male wing



238. *Chrysosoma villiersi* (Vanschuytbroeck, 1970), female head



239. *Chrysosoma mesotrichum* (Bezzi, 1908), hypopygium

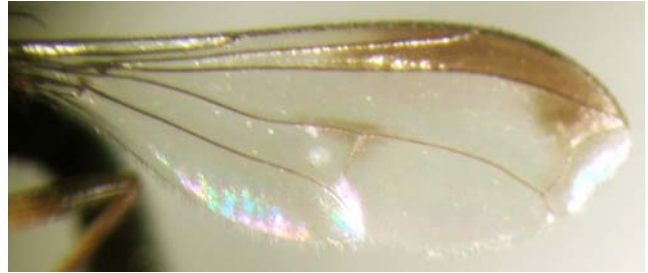


240. *Condyllostylus erroneus* Grichanov, 2003, male habitus

**Figs. 235–240 – *Chrysosoma*, *Condyllostylus*.**



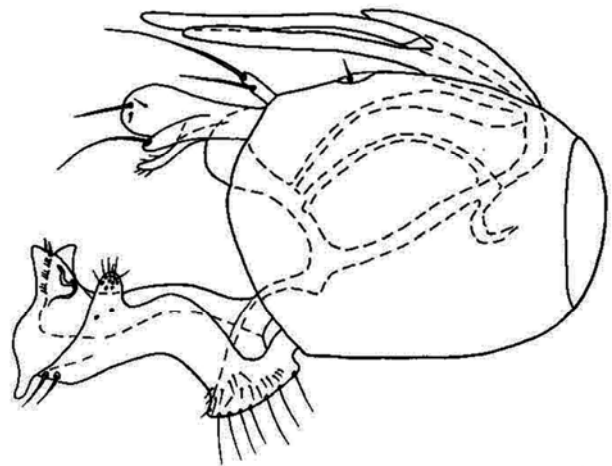
241. *Condyllostylus erroneus* Grichanov, 2003,  
male head



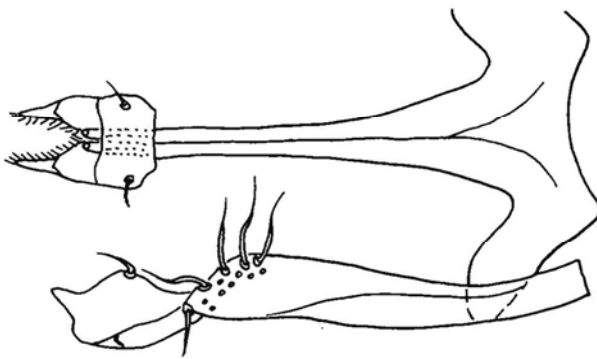
242. *Condyllostylus erroneus* Grichanov, 2003,  
male wing



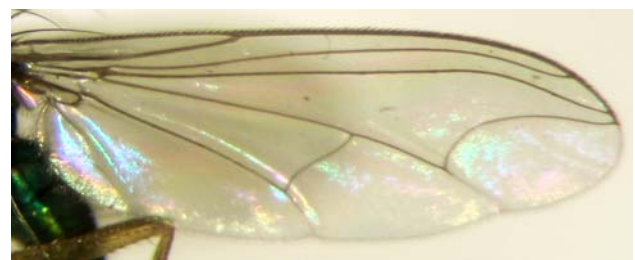
243. *Condyllostylus erroneus* Grichanov, 2003,  
hypopygium



244. *Dytomyia deconinckae* Grichanov, 1998,  
hypopygium laterally



245. *Dytomyia deconinckae* Grichanov,  
1998, cercus ventrally



246. *Ethiosciapus flavirostris* (Loew,  
1858), wing

**Figs. 241–246** – *Condyllostylus*, *Dytomyia*, *Ethiosciapus*.

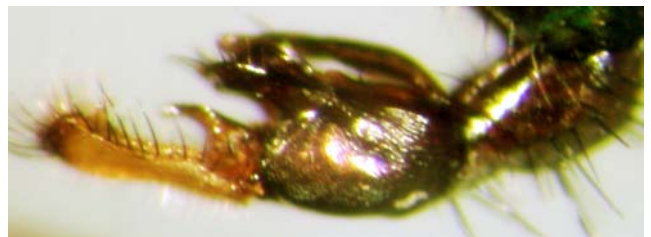




247. *Ethiosciapus finitimus* (Parent, 1939), male habitus



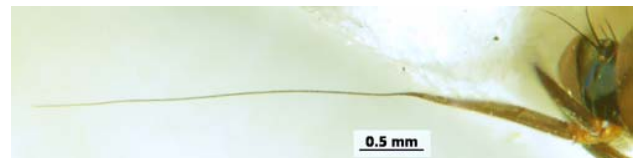
248. *Ethiosciapus finitimus* (Parent, 1939), head



249. *Ethiosciapus bicalcaratus* (Parent, 1933), hypopygium



250. *Gigantosciapus africanus* (Parent, 1933), male habitus



251. *Gigantosciapus africanus* (Parent, 1933), male antenna



252. *Gigantosciapus africanus* (Parent, 1933), male wing

**Figs. 247–252** – *Ethiosciapus*, *Gigantosciapus*.



253. *Gigantosciapus africanus* (Parent, 1933),  
hypopygium



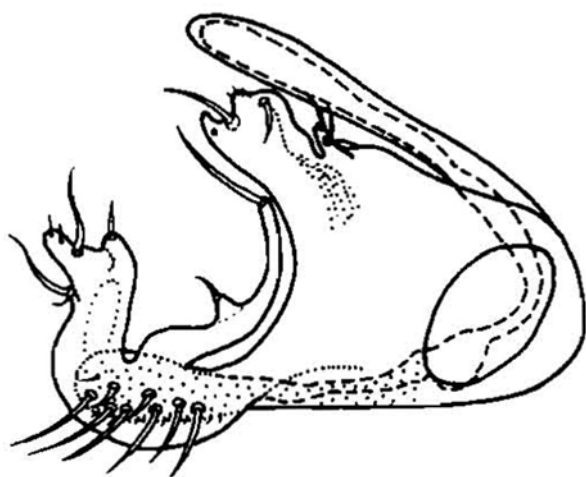
254. *Mascaromyia leptogaster* (Thomson,  
1869), male habitus



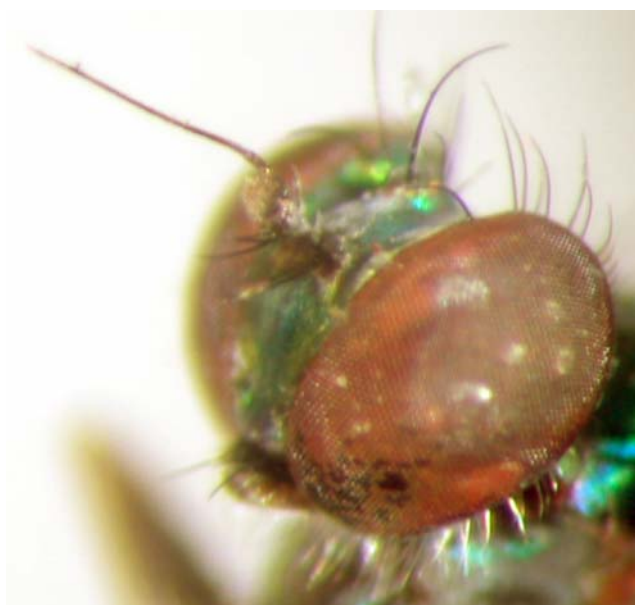
255. *Mascaromyia leptogaster* (Thomson,  
1869), head



256. *Mascaromyia leptogaster* (Thomson,  
1869), wing



257. *Mascaromyia leptogaster* (Thomson,  
1869), hypopygium



258. *Mesorhaga demeyeri* Grichanov, 1998,  
head

**Figs. 253–258** – *Gigantosciapus*, *Mascaromyia*, *Mesorhaga*.

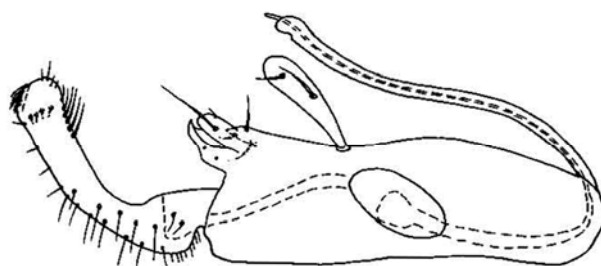




259. *Mesorhaga demeyeri* Grichanov, 1998, male habitus



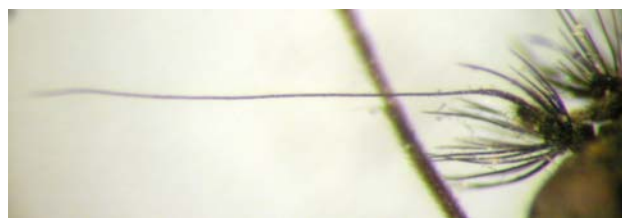
260. *Mesorhaga demeyeri* Grichanov, 1998, wing



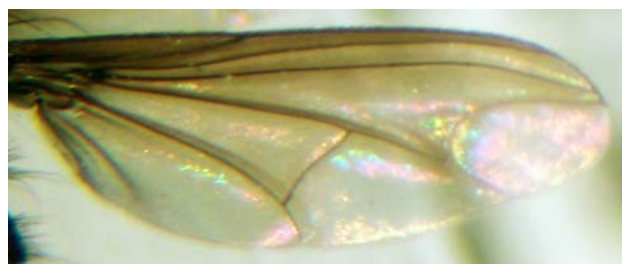
261. *Mesorhaga demeyeri* Grichanov, 1998, hypopygium



262. *Parentia substenura* Grichanov, 1999, male habitus



263. *Parentia angustipennis* (Loew, 1858), antenna

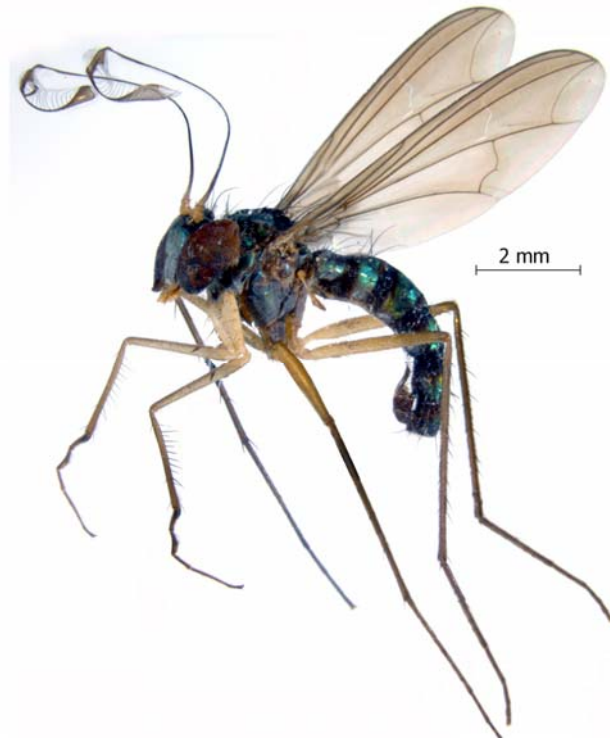


264. *Parentia angustipennis* (Loew, 1858), wing



265. *Parentia substenura* Grichanov, 1999, hypopygium

**Figs. 259–265 – *Mesorhaga*, *Parentia*.**



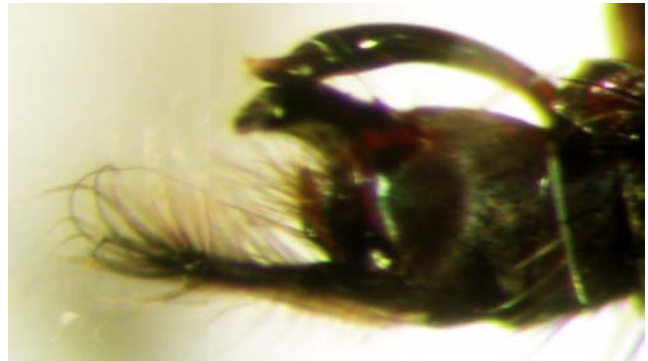
266. *Plagiozopelma bequaerti* (Curran, 1926), male habitus



267. *Plagiozopelma daveyi* (Parent, 1939), male head



268. *Plagiozopelma daveyi* (Parent, 1939), wing



269. *Plagiozopelma daveyi* (Parent, 1939), hypopygium



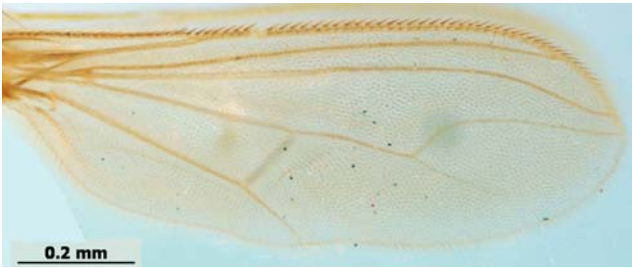
270. *Sciapus endrodyi* Grichanov, 1997, male habitus (in alcohol)



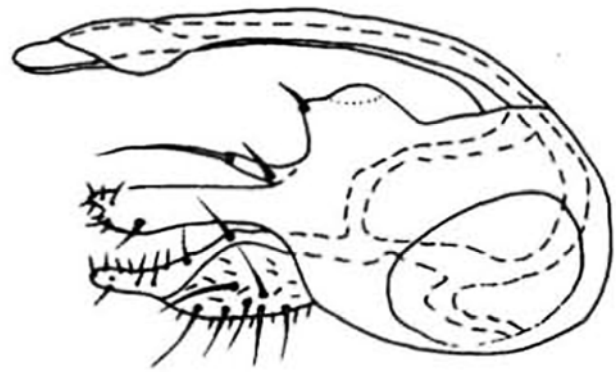
271. *Sciapus endrodyi* Grichanov, 1997, head (in alcohol)

**Figs. 266–271 – *Plagiozopelma*, *Sciapus*.**





272. *Sciapus endrodyi* Grichanov, 1997, wing



273. *Sciapus endrodyi* Grichanov, 1997, hypopygium



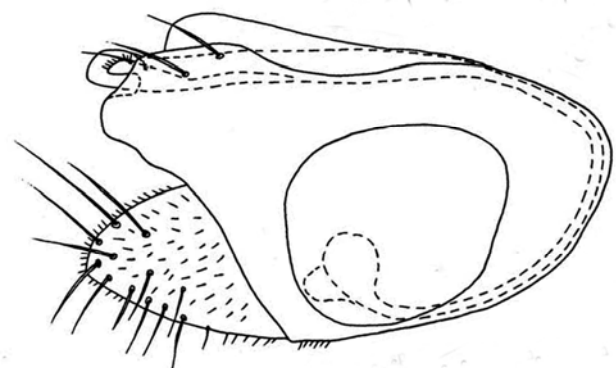
274. *Campsicnemus* sp. (St. Helena), male habitus



275. *Campsicnemus* sp. (St. Helena), male head



276. *Campsicnemus caffer* Curran, 1926, wing



277. *Campsicnemus yangi* Grichanov, 1998, hypopygium

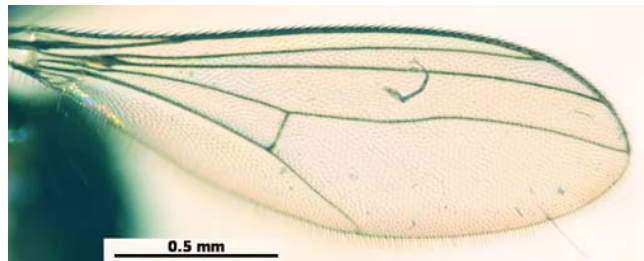
**Figs. 272–277 – *Sciapus*, *Campsicnemus*.**



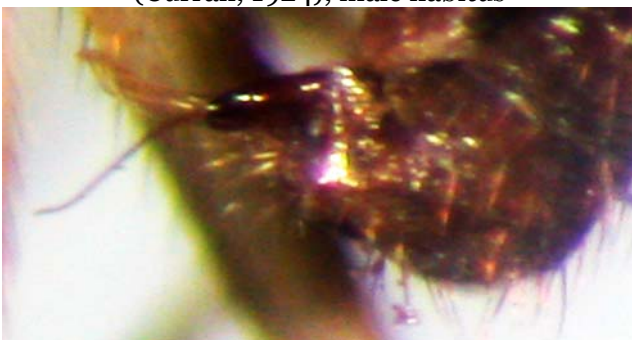
278. *Chaetogonopteron nectarophagum* (Curran, 1924), male habitus



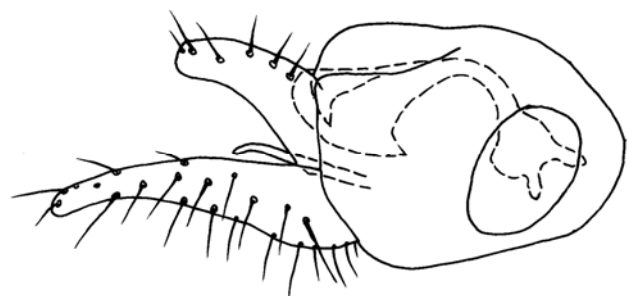
279. *Chaetogonopteron nectarophagum* (Curran, 1924), head



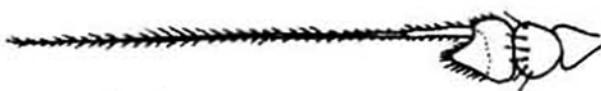
280. *Chaetogonopteron nectarophagum* (Curran, 1924), wing



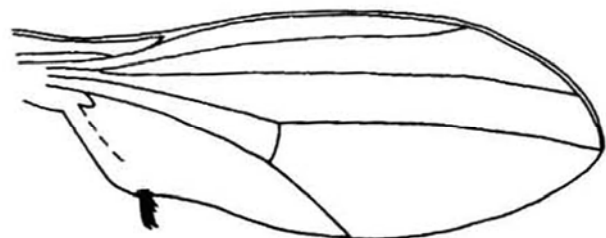
281. *Chaetogonopteron nectarophagum* (Curran, 1924), hypopygium



282. *Lamprochromus belousovi* (Grichanov, 2008), hypopygium



283. *Olegonegrobovia longicauda* Grichanov, 2000, antenna



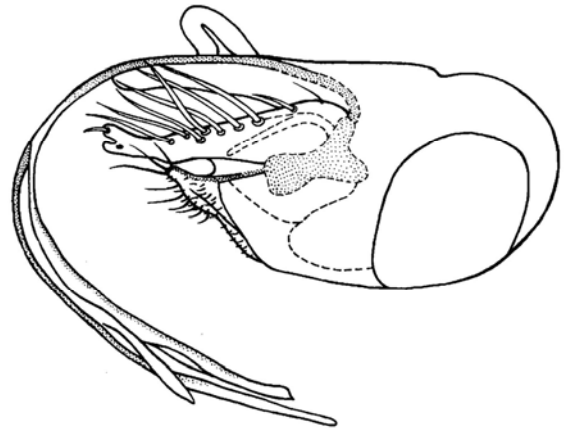
284. *Olegonegrobovia barkalovi* Grichanov, 1995, wing

**Figs. 278–284** – *Chaetogonopteron*, *Lamprochromus*, *Olegonegrobovia*.





285. *Olegonegrobovia longicauda* Grichanov, 2000, male habitus



286. *Olegonegrobovia barkalovi* Grichanov, 1995, hypopygium



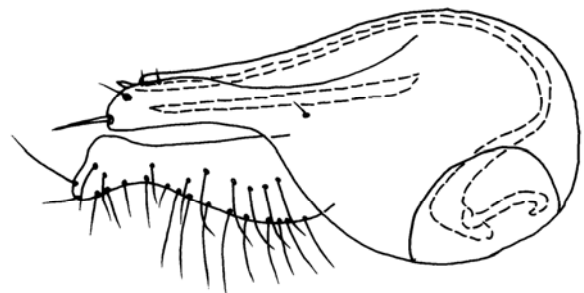
287. *Sympycnus caffer* Loew, 1858, male habitus



288. *Sympycnus caffer* Loew, 1858, male head



289. *Sympycnus caffer* Loew, 1858, wing



290. *Sympycnus davidyani* Grichanov, 2008, hypopygium

**Figs. 285–290 – *Olegonegrobovia*, *Sympycnus*.**



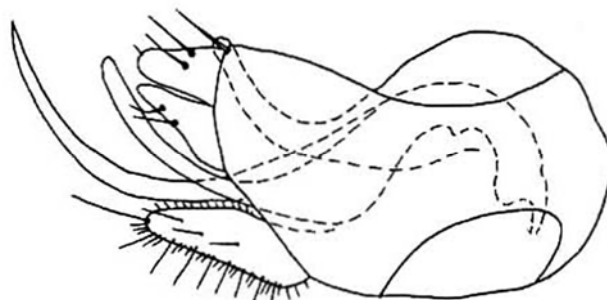
291. *Syntormon madagascarensis* Grichanov, 2001, male habitus



292. *Syntormon madagascarensis* Grichanov, 2001, head



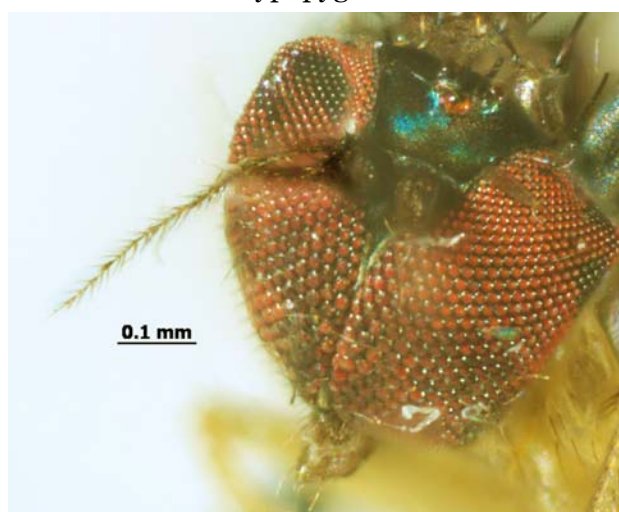
293. *Syntormon caffer* Curran, 1925, wing



294. *Syntormon tamatave* Grichanov, 2001, hypopygium



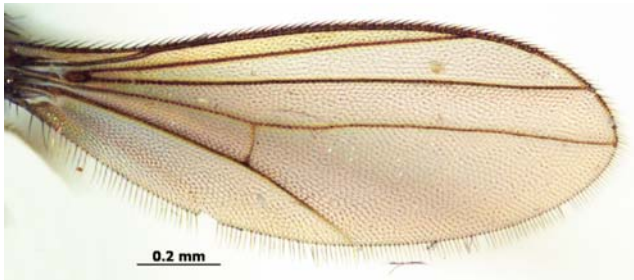
295. *Telmaturgus congensis* Grichanov, 2011, male habitus



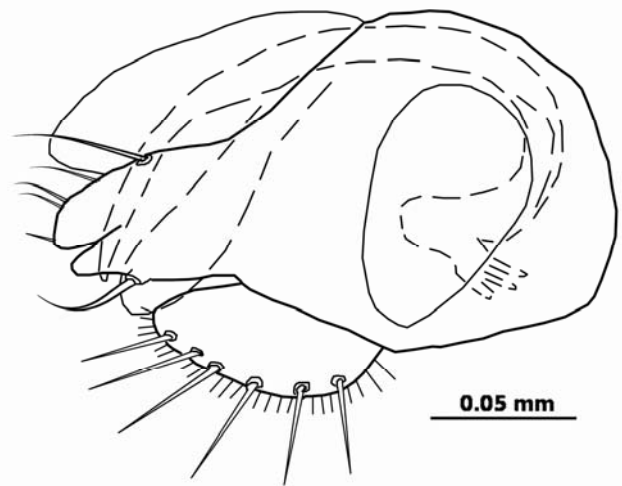
296. *Telmaturgus congensis* Grichanov, 2011, head

**Figs. 291–296 – *Syntormon*, *Telmaturgus*.**





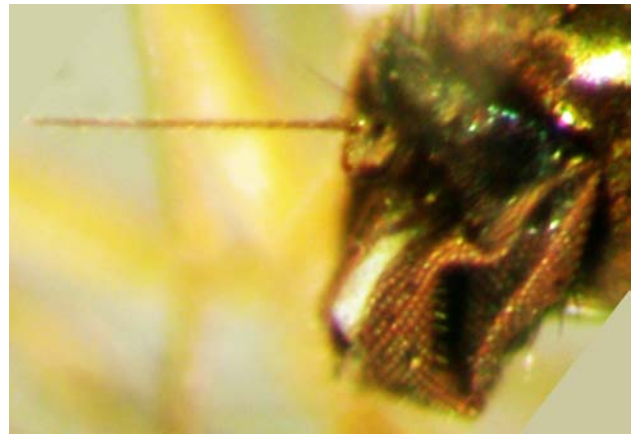
297. *Telmaturgus congensis* Grichanov, 2011,  
wing



298. *Telmaturgus congensis* Grichanov, 2011,  
hypopygium



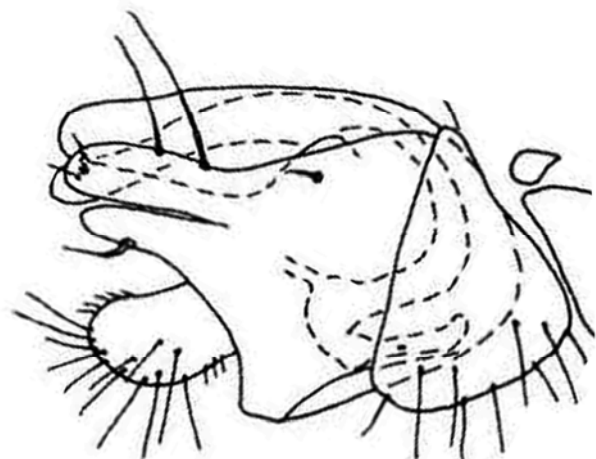
299. *Teuchophorus caprivi* Grichanov, 2000,  
male habitus



300. *Teuchophorus caprivi* Grichanov, 2000,  
head



301. *Teuchophorus caprivi* Grichanov, 2000,  
male wing

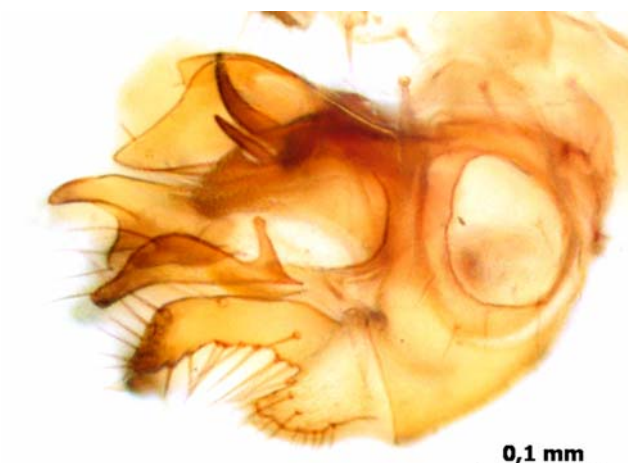


302. *Teuchophorus caprivi* Grichanov, 2000,  
hypopygium

**Figs. 297–302 – *Telmaturgus*, *Teuchophorus*.**



303. *Xanthochlorus kustovi* Grichanov, 2010,  
male head



304. *Xanthochlorus kustovi* Grichanov, 2010,  
hypopygium



305. *Xanthochlorus kustovi* Grichanov, 2010, wing  
**Figs. 303–305 – *Xanthochlorus*.**



## Priamus & Priamus Supplement

ISSN 1015-8243

**Priamus** is the first international serial publication of the Centre for Entomological Studies Ankara (CESA), established in 1981. It appears in volumes at irregular intervals. It includes shorter original articles of the research workers of the Centre, regarding taxonomy, nomenclature, morphology, bibliography, check-list, catalogue of Insects, especially Lepidoptera, as well as papers on faunistic, ecological and distributional researches. The publication languages are Turkish, English, German and Uighurian.

**Priamus Supplement** is the first international, online publication of the Centre for Entomological Studies Ankara (CESA), established in 2006 in accordance with the Publications Rules of the ICZN. It appears at irregular intervals as PDF format and announced in the internet site of the CESA. It includes larger original articles and theses of the research workers of the Centre, regarding morphology, bibliography, check-list, catalogue of Insects, especially Lepidoptera, as well as papers on faunistic, ecological and distributional researches. The publication languages are Turkish, English, German and Uighurian.

## Centre for Entomological Studies Ankara



(A scientific Consortium)

(co-operation of research workers for pure-scientific, not commercial purpose)

Web Page of the Cesa: <http://www.cesa-tr.org/>

**Scientific Serials:** Priamus & Supplement (ISSN 1015-8243)<sup>2</sup>, Miscellaneous Papers (ISSN 1015-8235)<sup>3</sup>, Memoirs (ISSN-8227)<sup>4</sup>, DVD Films<sup>5</sup>, Iconographia Insectorum<sup>6</sup>, Cesa Publications on African Lepidoptera (series)<sup>7</sup>, Cesa News [online]<sup>8</sup>, Cesa Books<sup>9</sup>

**Owners / Sahipleri - Editors / Yayıncılar:** Prof. Dr. Ahmet Ömer Koçak (c/o Yüzüncü Yıl University, Turkey) - Editor Assistant: Asst. Prof. Dr. Muhabbet Kemal Koçak (c/o Yüzüncü Yıl University, Turkey).

**Editorial Board of all Scientific Serials / Bütün Bilimsel Yayınların Yayın Kurulu:** Insecta, taxonomy, nomenclature, ecology, faunistics: Prof. Dr. Ahmet Ömer Koçak (Yüzüncü Yıl Üniversitesi, Turkey), Asst. Prof. Dr. Muhabbet Kemal Koçak (Yüzüncü Yıl University, Turkey), Assoc. Prof. Dr. Selma Seven (Gazi University, Turkey); Homoptera: Dr. Emine Demir (Turkey). Orthoptera: Assoc. Prof. Dr. Mustafa Ünal (Abant İzzet Baysal University, Turkey), Asst. Prof. Dr. Yusuf Hüseyinoğlu (Mersin University, Turkey), Asst. Prof. Dr. Yaşar Gülmez (Gazi Osman Paşa University, Tokat). Coleoptera / Chrysomelidae: Assoc. Prof. M.S.Mohammedsaid (Malaysia). - Plant taxonomy, flora and vegetation: Asst. Prof. Dr. Fevzi Özgökçe, Asst. Prof. Dr. Mural Ünal (Yüzüncü Yıl University, Van, Turkey).

ALL RIGHTS RESERVED

Correspondences should be addressed to: Prof. Dr. Ahmet Ömer Koçak, c/o Yüzüncü Yıl University, Fen Fakültesi, Biyoloji Bölümü, Kampus, Van / Turkey. - e-mail: [cesa\\_tr@yahoo.com.tr](mailto:cesa_tr@yahoo.com.tr)

All serials are recorded regularly by the Zoological Record,  
Thomson Reuters, Enterprise House, Innovation Way, Heslington, York, YO10 5NY, United Kingdom  
[ts-emea-york.dcsadmins@thomson.com](mailto:ts-emea-york.dcsadmins@thomson.com)

 Cesa © 1966-2011

<sup>2</sup> <http://www.cesa-tr.org/Pri.htm> - earlier issues of Priamus as pdf available after corresponding ; Priamus Supplement (online) pdf available

<sup>3</sup> <http://www.cesa-tr.org/Miscell.htm> - earlier issues as pdf available after corresponding

<sup>4</sup> <http://www.cesa-tr.org/Memoirs.htm> - pdf available

<sup>5</sup> <http://www.cesa-tr.org/CDF.htm>

<sup>6</sup> <http://www.cesa-tr.org/Icon.htm>

<sup>7</sup> [http://www.metafro.be/Members/Cesa/internet\\_sayfas305/base\\_view](http://www.metafro.be/Members/Cesa/internet_sayfas305/base_view) - pdf available

<sup>8</sup> <http://www.cesa-tr.org/Cesanews.htm> pdf available

<sup>9</sup> <http://www.cesa-tr.org/Cesabooks.htm> CD format